APRIL 20, 1953

Revenue & Expense Tables . . . p. 46

# RAILWAY AGE

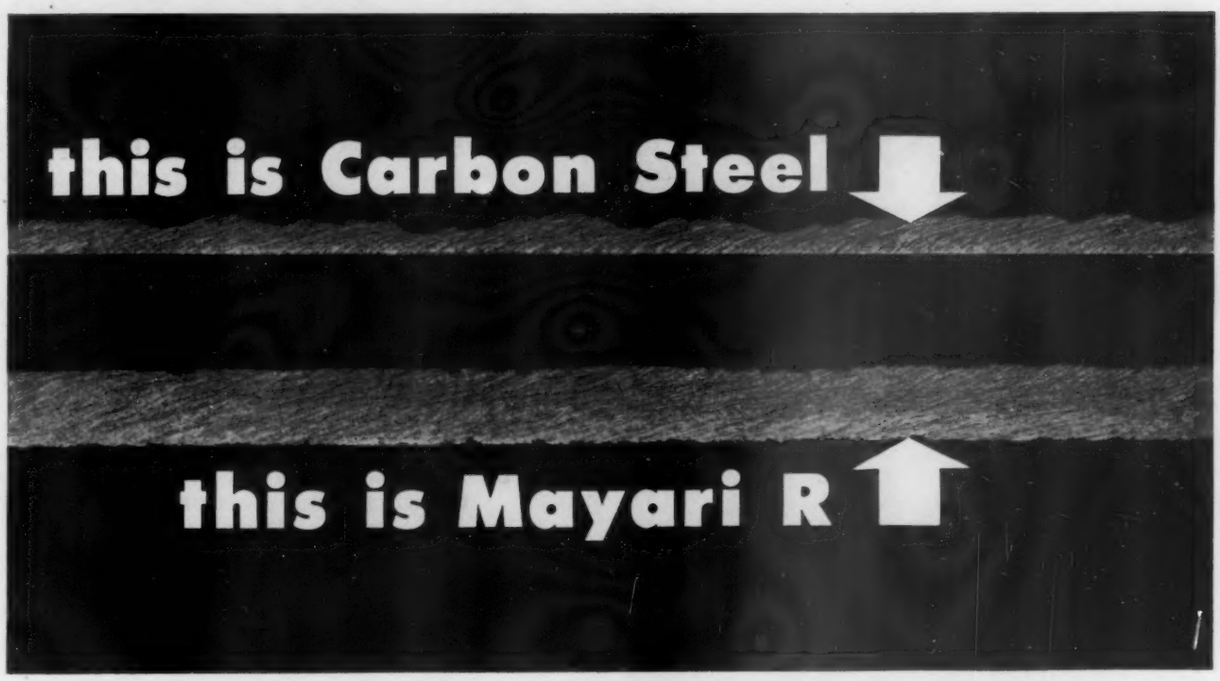
The Standard Railroad WEEKLY for Almost a Century


# TO-MORROW'S FREIGHT CAR

—regardless of continuing progress in design, materials and performance—will still have one thing in common with today's freight car. It will be equipped with Unit Trucks—Unit's advanced design and functional simplicity will set the standard for freight car brake rigging for a long, long time to come.

UNIT TRUCK

# after 5 years' exposure




The upper portion of this unretouched photograph shows a cross-section of a carbon steel sheet, and the lower portion shows a Mayari R sheet, after identical exposure. Both sheets were of the same thickness when originally exposed to the atmosphere. The photograph is approximately 4 times actual size.

Mayari R, Bethlehem's low-alloy, high-strength steel, has 5 to 6 times more resistance to atmospheric corrosion than plain carbon steel. . . . and 2 to 4 times as much as copper-bearing steel.

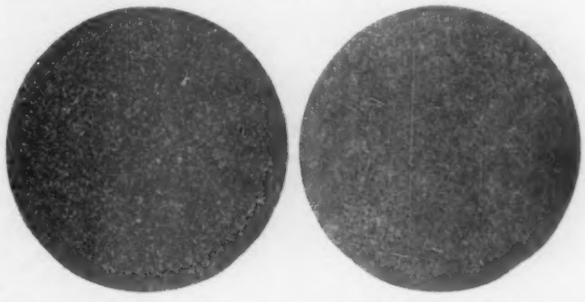
These figures are the findings of extensive tests conducted in different types of atmosphere. They have been confirmed in practice by applications that range from railway hopper cars to pole line hardware.

Here's the reason why Mayari R has such excellent corrosion-resistance. When it is exposed, a thin, tight layer of rust forms on the surface to act as a protective coating. This rust does not flake off in the manner of carbon-steel rust. Instead, it holds securely to the surface and retards any further corrosive action.

Another interesting feature of Mayari R is its superior ability to retain paint. Tests show that primer paint will last 20 to 80 pct longer on Mayari R than on carbon steel, depending upon the type of primer used.

Mayari R has other advantages, including higher yield-point and greater tensile-strength than are found in ordinary steel. These features contribute to longer life, lower maintenance and improved design of equipment and structures.

For more information about Mayari R, its properties and its recommended applications, call or write any of our sales offices and ask for a copy of Catalog 259.



Surface views of the same test specimens as shown in the upper photograph. After 5 years' exposure the Mayari R (right) is relatively smooth while the carbon steel (left) is rough and deeply pitted.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

**Mayari R** *makes it lighter... stronger... longer lasting*

# RAILWAY AGE

PUBLISHED WEEKLY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION AT ORANGE, CONN., AND ENTERED AS SECOND CLASS MATTER AT ORANGE, CONN., UNDER THE ACT OF MARCH 3, 1879. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA. EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y., AND 79 WEST MONROE STREET, CHICAGO 3, ILL. BRANCH OFFICES: 1081 NATIONAL PRESS BUILDING, WASHINGTON 4, D. C.—TERMINAL TOWER, CLEVELAND 13, OHIO.—TERMINAL SALES BUILDING, PORTLAND 5, ORE. — 1127 WILSHIRE BOULEVARD, LOS ANGELES 17, CAL.—244 CALIFORNIA STREET, SAN FRANCISCO 11, CAL. — 2909 MAPLE AVENUE, DALLAS 4, TEX.

SIMMONS-BOARDMAN PUBLISHING CORPORATION: JAMES G. LYNE, PRESIDENT. SAMUEL O. DUNN, CHAIRMAN EMERITUS. J. S. CRANE, VICE-PRESIDENT AND SECRETARY. C. MILES BURPEE, HARRY H. MELVILLE, C. W. MERRIKEN, JOHN R. THOMPSON, WILLIAM H. SCHMIDT, JR., J. S. VREELAND, FRED W. SMITH, VICE-PRESIDENTS. ROBERT G. LEWIS, ASSISTANT TO PRESIDENT. ARTHUR J. McGINNIS, EXECUTIVE VICE-PRESIDENT AND TREASURER. RALPH E. WESTERMAN, ASSISTANT TREASURER.

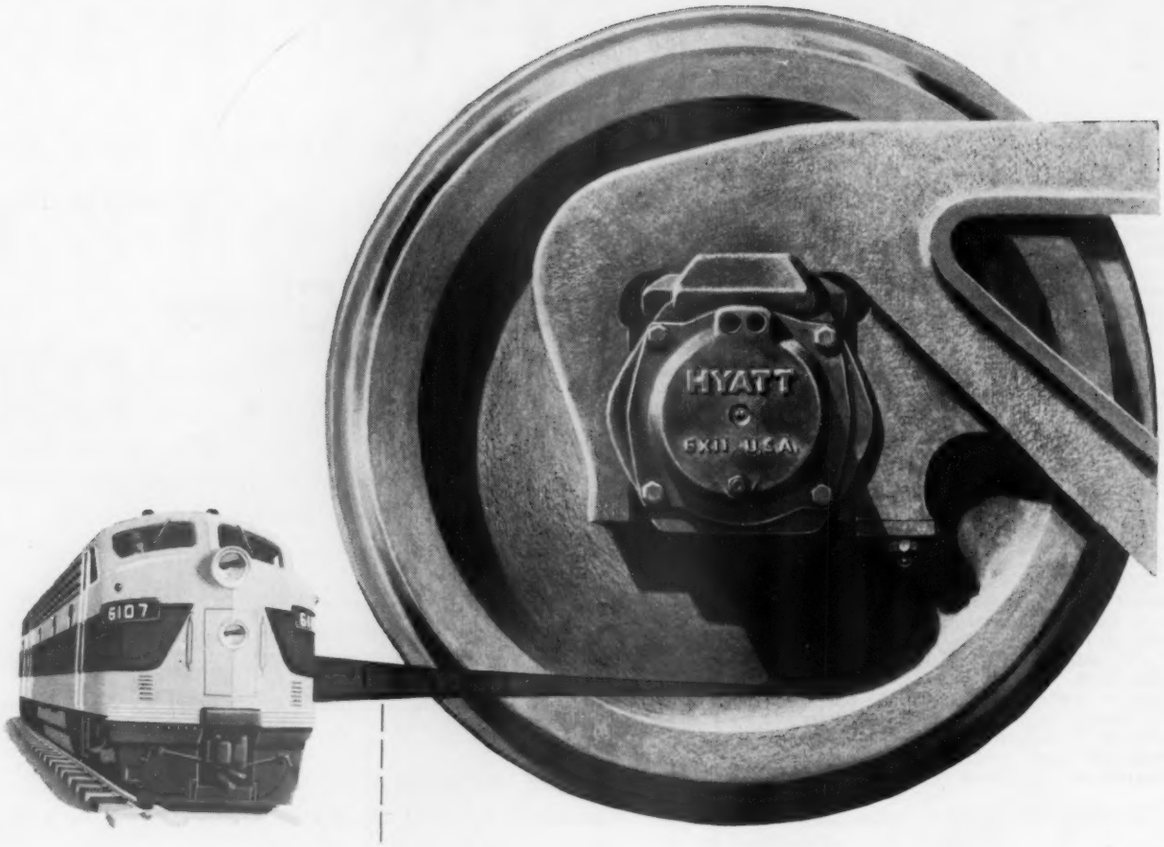
SUBSCRIPTION PRICE TO RAILROAD EMPLOYEES ONLY IN U. S., U. S. POSSESSIONS, CANADA AND MEXICO, $4 ONE YEAR, $6 TWO YEARS, PAYABLE IN ADVANCE AND POSTAGE FREE. SUBSCRIPTION PRICE TO RAILROAD EMPLOYEES ELSEWHERE IN THE WESTERN HEMISPHERE, $10 A YEAR; IN OTHER COUNTRIES, $15 A YEAR—TWO-YEAR SUBSCRIPTIONS DOUBLE THE ONE-YEAR RATE. SINGLE COPIES 50c, EXCEPT SPECIAL ISSUES $1. ADDRESS CORRESPONDENCE CONCERNING SUBSCRIPTIONS TO ROBERT G. LEWIS, ASSISTANT TO PRESIDENT, 30 CHURCH STREET, NEW YORK 7.





**April 20, 1953** **Vol. 134, No. 16**


## Week at a Glance




**Add *modern* bearings to *modern* power . . .**

**and watch those FREIGHT cars roll !**

With modern diesels providing the power, railroads are carrying more freight than ever before . . . and on faster schedules. But, the advantages of diesel power are wasted every time one of your fast freights is delayed by a hot box! That's where Hyatt enters the picture—to save you money and safeguard your profits! When freight cars are equipped with Hyatt Roller Bearing Journal Boxes, modern bearings will team with modern power . . . and the "hot box" problem can be eliminated. Your freight trains will highball along without stops for journal box inspections . . . free from "hot box" delays . . . moving mountains of merchandise quickly and safely! Let us show you the economies of "Hyatts for Freight" as applied to integral side frame or pedestal-type boxes, for changeovers or new equipment. Write to Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

running mate of diesel freight

**HYATT** Roller Bearing Journal Boxes

## Current Statistics

| | |
|---|---|
| Operating revenues, two months | |
| 1953 | $ 1,675,969,483 |
| 1952 | 1,712,242,248 |
| Operating expenses, two months | |
| 1953 | $ 1,282,776,540 |
| 1952 | 1,335,231,969 |
| Taxes, two months | |
| 1953 | $ 199,785,353 |
| 1952 | 206,617,952 |
| Net railway operating income, two months | |
| 1953 | $ 157,874,871 |
| 1952 | 142,130,419 |
| Net income, estimated, two months | |
| 1953 | $ 114,000,000 |
| 1952 | 95,000,000 |
| Average price railroad stocks | |
| April 14, 1953 | 65.30 |
| April 15, 1952 | 58.12 |
| Car loadings revenue freight | |
| Fourteen weeks, 1953 | 9,589,025 |
| Fourteen weeks, 1952 | 10,047,281 |
| Average daily freight car surplus | |
| April 11, 1953 | 65,974 |
| April 12, 1952 | 17,627 |
| Average daily freight car shortage | |
| April 11, 1953 | 1,316 |
| April 12, 1952 | 1,750 |
| Freight cars delivered | |
| March, 1953 | 6,679 |
| March, 1952 | 8,159 |
| Freight cars on order | |
| April 1, 1953 | 68,553 |
| April 1, 1952 | 115,854 |
| Freight cars held for repairs | |
| March 1, 1953 | 94,165 |
| March 1, 1952 | 91,906 |
| Average number of railroad employees | |
| Mid-February 1953 | 1,184,197 |
| Mid-February 1952 | 1,218,016 |

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX AND BY THE ENGINEERING INDEX SERVICE. RAILWAY AGE INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE.

## Departments



## Week at a Glance CONTINUED

# Week at a Glance CONTINUED

**There's an Unusual School** for training station agents on the Texas & New Orleans 97

## BRIEFS

**"A Very Large Bundle of Papers"** said to have been "purloined" from the New York office of Carl Byoir & Associates, public relations firm, has become a leading issue in the suit filed by Pennsylvania truck operators against eastern railroads. U. S. District Judge Thomas J. Clary has ruled that the Pennsylvania's Motor Truck Association, which admits having received the papers from American Trucking Associations, must permit Byoir "to inspect and to copy" documents which were once its own property—and which trucking attorneys said they were "guarding with our lives."

**Freight-Rate Equalization** in Canada "should neither diminish nor increase" railroad revenues, the Dominion's two major rail systems believe. "Equalization," said the Canadian Pacific, "should be shaped to fit the national economy," rather than to try to make the economy conform to the rate structure.

**The Astonishing Variation in Truck Fees** between different states is sharply pointed up in a recent publication of the U. S. Bureau of Public Roads. Yearly fees on a 40,000-lb., three-axle tractor semi-trailer, in private operation, reach a high of $1,122 in Kentucky. A comparable vehicle operated by a contract trucker would pay a high of $1,275 in California. New Jersey—which taxes its railroads more than any other state—is low in taxes on both types of truck—only $442 per year.

**More and More Pressure** is being put on Chicago's South Side passenger roads for a consolidated passenger terminal to replace Dearborn, Grand Central and La Salle Street Stations. The city council's committee on railway terminals has bluntly stated that legislation will be introduced to attain participation by the railroads in the new proposal "should no other means [of attaining it] be available."

**In addition to speeding freight,** retarder classification yards greatly reduce damage claims arising from rough handling, John J. O'Toole, general manager, CMSP&P, said in a recent address. His statement is based on six months' operation of his road's new Air Line yard at Milwaukee, where an 80 per cent reduction in bad-order cars and a 63 per cent reduction in damage claims arising from switching have been effected.

**"Competitive Transportation"**—a brand new monthly digest of news and comment prepared for readership among railroad employees and supervisory officers — has been introduced by the Association of Western Railways. Some member roads have arranged for copies to be distributed directly to employees, while others are using selected material in company publications, memoranda, etc.

**"The Milwaukee Road Proposes** to continue offering passenger service wherever and to whatever extent public patronage indicates need for it. And as long as there is a reasonable chance of showing a profit on any train, we will continue to invest in equipment and services in the hope of attracting patronage." That is the message Milwaukee President John P. Kiley conveys in the current issue of the Milwaukee Road Magazine.

**An Electronic System of Car Recognition** which can be used to identify individual cars for automatic switching in hump yards is reported to be in the initial stages of development by one of the larger companies.

# The HERTZ Rail-Auto Plan

## is taking millions of travelers off the highways...and putting them back on the railroads!


More and More Railroads are joining Hertz in Promoting the Rail-Auto Plan

## Yet the fight has just begun . . . and it's the railroad's fight too!

**An amazing fact!** Last year motorists drove approximately 500 billion miles between cities! Here is the heart of the biggest and most persistent competition railroads face today!

**An effective solution!** As originated by Hertz, the Rail-Auto Plan strikes at the very core of city-to-city driving! People drive long, tiring, hazardous road miles not because they want to drive . . . but because they need and want a car at their destination. Hence, the Hertz Rail-Auto Plan *sells* rail travel for greater comfort and convenience . . . and a Hertz Rent-A-Car upon arrival at passengers' destination.

**Hertz Rail-Auto brings startling results!** This Hertz Rail-Auto Plan, as promoted by Hertz with the ever-growing cooperation of railroads, has brought increased revenue to both Hertz and the railroads.

**Last year, people who rented cars from Hertz at their railroad destinations, traveled approximately 657 million miles on railroads!**

*And make no mistake about it!* Many rail passengers traveled these rail miles *mainly* because they knew they could rent a car from Hertz at their destination!

**Powerful Hertz advertising promotes the Rail-Auto Plan!** Throughout the year Hertz sells the Rail-Auto Plan in leading national magazines to millions of readers. And—it's paying off.

**Alert railroad management joins the fight!** Thanks to your cooperation . . . promotions . . . advertising . . . and personal efforts of your ticket agents, the Hertz Rail-Auto Plan is growing steadily . . . consistently . . . successfully. But—there is still much to do. Use displays in your ticket offices. Advertise the Plan in your timetables. Run separate rent-a-car advertisements and in your own general advertisements devote space to the Plan.

**Tell your ticket agents about Hertz 10% commission!** This additional income for your agents—and it takes only a few minutes to earn it—plays an important part in advancing the Hertz Rail-Auto Plan. Tell your agents to ask this simple question of all passengers buying rail tickets:

**May I reserve a car for you at your destination?**

Just as soon as the car rental is completed, the Hertz station concerned will pay 10% commission on the total rental charge—*within 24 hours!* This is strict Hertz policy.

**Remember!** Hertz, the largest rent-a-car system in the world, established for 29 years, offers its excellent, dependable service at more than 700 stations in over 500 cities throughout the world. Hertz honors Rail Credit Cards . . . and more than one million and a half Hertz Charge Cards and Courtesy Cards! Hertz spends more than $2,000,000 yearly in advertising. Hertz provides rail travelers with new clean cars with all gasoline, oil, Public Liability, Property Damage, Fire and Theft Insurance and $100.00 deductible collision protection included in the low rate—at no extra cost.

**WRITE TODAY** for additional information . . . reservation forms . . . for everything your ticket agents need to promote the Rail-Auto Plan . . . continuously . . . actively . . . profitably. It's your fight, too!

**HERTZ** *Rent-A-Car* **SYSTEM** Dept. D43, 218 S. Wabash Avenue, Chicago 4, Illinois; phone: WEbster 9-5165


# How to get the SMOOTHEST POSSIBLE RIDE from an A.A.R. coil spring group!

*the simple, compact ASF Simplex Snubber...*

*...for smoother riding at lowest possible cost!*

The answer for any railroad—looking for the lowest-cost way to renovate old freight cars—is the ASF Simplex Snubber!

Here's a simple, interlocking, easy-to-install unit that prevents the build-up of harmonic oscillation and vibration. Just five simple parts work together: under load, the *rubber spring* compresses, forcing *two side wedges* against *two follower wedges*. Result? Controlled spring action—to give you the smoothest possible ride from A.A.R. coil-snubber groupings.

Naturally the ride you get from these modified spring groups doesn't equal the riding qualities of the modern ASF Ride-Control Truck or the ASF Ride-Control Package. But, in cases where the age and condition of cars warrant only the *smallest* investment, the Simplex Snubber will pay big dividends in low-cost operation, less lading damage, longer car life, reduced car maintenance costs.

**Facts on smoother riding—at lowest possible costs...**

Write today for free bulletin on ASF Simplex Unit Type Snubbers! It gives complete details on construction, operation, and the snubber-coil arrangements that will give you the highest return on your snubber investment.

ASF

## American Steel Foundries

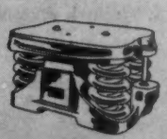
410 North Michigan Ave., Chicago 11, Ill.

Canadian Sales: International Equipment Co., Ltd., Montreal, Quebec

*Look for this MINT ⬡ MARK on the running gear you specify*

Cast Steel Brake Beams

Ride-Control Trucks



Ride-Control Packages

Simplex Snubbers

Tightlock Couplers

Type F Couplers

Type E Couplers

## Law & Regulation

# Bricker Hopes for Action in '54

**Senator tells security analysts Congress must act "sooner or later"—Other speakers favor single regulatory agency for all forms of transport**

"Sooner or later, Congress will have to revise its regulatory policies in the light of competitive realities," Senator John W. Bricker (Rep., Ohio), told the Transport Forum of the sixth annual convention of the National Federation of Financial Analysts Societies at Philadelphia, April 13. "I am hopeful . . . that the Senate will act in this session," he also said, on some measures designed to carry out recommendations of the "Progress Report" which he and Senator Herbert R. O'Connor (Dem., Md.), prepared as a result of the investigation carried out (1949-1951) by a Senate subcommittee under Senate Resolution 50 (1949). But because "correction of the most obvious regulatory inequities takes time," he indicated, in response to a question from the floor, that there was little likelihood of final passage of any important measures prior to 1954.

With Senator Bricker on the forum program were Miss May A. Naylor, trust investment officer of the Pennsylvania Co. for Banking & Trusts, and Mrs. Marion M. Warner, senior transportation analyst of Brown Bros., Harriman & Co. Pierre R. Bretey, railroad analyst of Baker, Weeks & Co., and past president of the federation, presided.

### Congress' Responsibility

Senator Bricker's confidence in eventual passage of transport legislation was based on his assertion that "Congress must, from time to time, study the field of transportation in its broadest possible perspective." This "overall responsibility" contrasts, he pointed out, with "the narrow range of vision [which] handicaps public regulatory officials." Because "regulation has become increasingly complex," and, as a result, "departmentalized . . . the best of administrators does well to keep abreast of problems in his own bailiwick, without surveying the entire field."

"Unfortunately," he continued, "demands on the time of Congress have often made impossible a comprehensive study of federal regulation of transportation. Congress has met individual problems as they arose, giving, I fear, little attention to the impact of piecemeal legislation on the pattern of federal regulation as a whole."

### "Failure of Government"

His committee found, the senator said, that "almost all the ills peculiar to the transportation industry stem from failure of government to formulate and execute regulatory policies and promotional activities in accordance with the spirit of its own declaration of transportation policy. . . . A number of regulatory inequities exist because a transportation monopoly which might have justified the regulation originally has been eliminated by competition."

But, he concluded:

"The problem of federal regulation is only one part of the transportation problem. Our basic problem is to maintain transportation businesses as healthy, private enterprises. However, it is not the function of government to underwrite the solvency of any segment of the transportation industry. This apparent contradiction is the crux of the transportation problem.

"The poor financial condition of any transportation group is the concern of the federal government only when such financial weakness results from government action. If regulation were fair and impartial, if taxes were not so high as to discourage private investment, and if the government's promotional activities did not give certain carriers an unfair competitive advantage, we would not be concerned today with distortions in the transportation pic-


**COMPLETE EVOLUTION . . .**

**FROM STEAM TO DIESEL power is clearly portrayed in this pair of photographs of the South Louisville (Ky.) shops of the Louisville & Nashville, taken just a few short years apart.**

**DIESELIZATION, while not yet completed on the L&N, has reduced the number of steam locomotives on the property to less than 60. The last steamer was repaired here in November 1952.**

ture. We could be sure that the inherent advantages of various modes of transportation were being determined by consumer preferences and reflected in their competitive positions. Such is not the case today. Federal taxation is at a confiscatory level. Regulation of transportation is not impartial. Promotional activities are discriminatory. So long as these conditions exist, Congress must be concerned with the future of all forms of transportation, for it can never be sure that the weakest link is not in fact the most essential."

### Three Needs

Miss Naylor declared that "many changes in regulation are needed for all forms of transportation." The three which would most help the railroads are, she said, for the short term, "(1) a change in method of granting rate increases and (2) to give railroad management an opportunity to show its potentialities"; for the longer term, "the most glaring need is a commission or group which would have jurisdiction over regulation of all forms of transportation."

As to her second "short-term" proposal, she pointed out that "we have seen the emergence of a young, vigorous, open-minded group of men on many roads. Why can't we let them decide the level of rates which will keep and attract traffic and meet competition? . . . Without detracting from the ability of [Interstate Commerce] commissioners, railroad officers are much closer to their problems, and it should be their responsibility to consider 'the effect of rates on movement of traffic.'"

Arguing for a single regulatory agency Miss Naylor said that only with such an overall body could we "have hopes for realistic regulation based on conditions as they exist for all modes of transportation." "The national interest," she added, "is not being best served with present unequal regulations" by "a makeshift group of commissions, bureaus, agencies" which give "little consideration" to the whole problem. A single agency, she conceded, "would be the most difficult step . . . particularly with subsidies involved," but "the trucking industry and air lines are no longer toddling infants; they are big boys now, and must share in the adult's responsibility."

Mrs. Warner, discussing "regulatory problems in relation to the air lines," said "subsidy may become a thing of the past," in which case their real problem will be "how to raise the money" for new planes. The industry needs, she declared, "the benefit of regulatory guidance that is realistic and consistent."

# Railroads Oppose Radio-Brake Bills

## Gurley and Shoemaker among those appearing at Senate committee hearing where proposals to extend I.C.C. powers were supported by Commissioner Patterson and others

Two railroad presidents—F. G. Gurley of the Santa Fe and Perry M. Shoemaker of the Lackawanna—were among the industry's spokesmen who opposed the "radio-rules" and brake bills at hearings held last week by the Senate committee on interstate and foreign commerce.

The radio-rules bill is S.539, which would amend the Interstate Commerce Act's section 25 (which now contains provisions of the so-called signal inspection act) to give the Interstate Commerce Commission authority to require installation of radio and other train-communication systems and to prescribe operating rules in connection therewith and in connection with present signaling facilities. The brake bill is S.1401, which would amend the Safety Appliance Acts to give the commission authority to require railroads to install power brakes; and to prescribe rules, standards and instructions for the installation, inspection and maintenance of such brakes.

The bills were introduced by the chairman of the Senate committee—Senator Tobey, Republican of New Hampshire. They were supported at last week's hearings by Commissioner William J. Patterson of the I.C.C., and representatives of railroad labor organizations. Opposition presentations, in addition to those of Messrs. Gurley and Shoemaker, were made by Thomas L. Preston, general solicitor, Association of American Railroads; E. P. Stine, assistant to the vice-president—operation, Chicago, Burlington & Quincy; and Donald E. Mumford, manager of safety, New York Central.

Mr. Gurley said that an enlargement of the I.C.C.'s powers over train operating rules and communications would be unwise and unnecessary because the railroad industry's record of safety is "one of steady improvement and high accomplishment." The Santa Fe president gave the figures for 1952, when the railroads made their best safety record.

He also cited the increase in the use of radio by railroads in recent years as an example of the use of new developments in railroad operations. The railroads have a sound business incentive in applying new communications techniques to their operations to obtain the highest level of production on the most efficient basis, Mr. Gurley maintained. He added that the government should encourage this attitude, not deaden it by transferring control of communications to a regulatory agency.

Mr. Shoemaker warned that no governmental agency can sit in Washington and exercise jurisdiction over rules and regulations affecting the operation of more than 223,000 miles of railroad without seriously impairing the ability of the railroads to move the traffic of the country with safety. The division of responsibility for railroad operation that would result from enactment of S.539 would be "disastrous," the DL&W president also said.

He went on to assert that the one compelling limitation in developing greater safety and efficiency is the earnings situation. On that score, he gave the committee this advice: "I suggest that the most effective safety measures which Congress could provide would be those designed to afford the railroads the opportunity to realize sufficient revenues."

### No Hasty Action

On the brake bill, Mr. Preston testified that "in the whole field of railroad operation, nothing presents less occasion for new legislation than the matter of train brakes." Noting that the bill was introduced after the accident at Washington's Union Station, where a runaway passenger train crashed through the gates, the A.A.R. general solicitor suggested that the committee should abstain from "hasty action" under the "urge of an isolated incident." Mr. Preston also outlined steps taken by the railroads to prevent recurrence of like accidents.

Mr. Stine said that enactment of the radio-rules bill would retard the progress being made in the field of train communications. And progress is being made "as fast as financial obligations permit," he added. He had figures showing that during the five-year period ended last January 1, the number of train communication systems on U.S. railroads increased from 122 to 305 and covered a road mileage that rose from 17,000 to 47,000. To give the I.C.C. jurisdiction over rules would be "nothing less than to grant the commission authority to operate the railroads," Mr. Stine also said.

Mr. Mumford outlined the railroads' safety record to support his thesis that the proposed legislation is not necessary. "So safe is railroad equipment today," he said, "that the safety problem on the railroads is one largely of obtaining maximum observance of rules. No legislation can do more than is being done by the railroads to that end, and the proposed legislation, with the divider responsibility which it engenders, would impair rather than improve the understanding and observance of operating rules."

In his statement supporting the bills, Commissioner Patterson was spokesman for the commission which recommended such legislation. It has been

recommending a radio-rules bill for the past six years.

In his discussion of the brake bill, the commisioner pointed out that there is no law under which observance of the railroads' code of air brake rules can be required. "The records of our Bureau of Safety show that there is widespread nonobservance of these rules," he added. Later on, he asserted that the railroads, through the A.A.R., "have failed to bring about the general adoption and enforcement of satisfactory rules for maintenance and testing of air brakes."

### Track Motor Cars

Commissioner Patterson's discussion of the radio-rules bill included his statement that "the number and severity of accidents to track motor cars has been increasing." He added: "The commission is without authority to prescribe rules for their safe operation. Many of the carriers have not provided such rules, and apparently never will, unless compelled to do so. All of these track motor cars are not small and easily removed from the track."

The labor presentations were brief statements by W. D. Johnson, vice-president and national legislative representative, Order of Railway Conductors, and Harry See, national legislative representative, Brotherhood of Railroad Trainmen. Mr. Johnson supported both bills, while Mr. See supported only S.1401, the brake bill, taking no position on S.539.

## Murray Says Commerce Will Leave I.C.C. Alone

Less intervention by the Commerce Department in rate proceedings before the Interstate Commerce Commission seems likely as a result of decisions reached by Robert B. Murray, Jr., the new under secretary of commerce for transportation.

Testifying before the Senate Appropriations Committee on April 1, Mr. Murray said: "We have discovered that the custom during the previous administration was to appear before the I.C.C. in a great many cases and state an opinion for the Commerce Department. . . . That has been terminated during the period of two months we have been down there. . . ."

Mr. Murray went on to tell the committee that he has given directions aimed at cutting down Commerce Department interventions before all regulatory agencies. He stated again that the department "has no desire whatever to get involved in any regulatory activities at any time."

## Examiner Urges Tighter Expense-Account Rules

Modification of Interstate Commerce Commission accounting rules to provide more information about expense accounts of railroad officers has been recommended by Examiner O. L. Mohundro in the so-called Norfolk Southern case.

The proceeding, docketed as No. 30980, was instituted by the commission early in 1952 for the purpose of looking into the "management, accounting, financial and other practices" of the NS. At subsequent hearings, commission witnesses presented evidence with respect to salaries and expenses of several of the road's officers (*Railway Age*, April 28, 1952, page 17).

Examiner Mohundro found, among other things, the respondents used funds for salaries, expenses and fees in a manner that was "inordinate, extravagant, and, in many instances, wasteful." Expense accounts did not indicate the nature and purposes of such expenses "as required by the commission's accounting regulations." He said officers of the NS engaged in "questionable practices" in making non-interest bearing loans to the chairman of the board of directors.

The examiner recommended the commission amend its Uniform System of Accounts by adding a provision to require spelling out details of individual expense accounts. He said regulations should be revised to provide that officer salaries and expense accounts be reported separately.

Evidence in the NS case, the examiner said, showed the road used railway funds in "diverse" business ventures, including speculation in the stock of another railroad company. He then recommended the commission "renew with vigor" a proposal it made in a similar case several years ago. This proposal, an amendment to the Interstate Commerce Act, would generally restrict a railroad's resources to "the development of its own transportation system," with strict rules to guide any investments made in "outside activity."

# Labor & Wages

## Wage Dollar Buying Fewer Ton-Miles

### Drop between 1939 and 1952 amounted to 47.7 per cent, I.C.C. bureau shows

Each dollar paid in wages in 1951 by Class I line-haul railroads bought 47.7 per cent fewer gross ton-miles than the 1939 wage dollar.

This was shown by figures in the latest "Monthly Comment" issued by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. In 1939, there were produced 585 gross ton-miles per


**BLOOD—19,400 pints of it—was gathered by the Great Northern's blood procurement car during its first year of operation ending April 2. To honor the GN for its contribution to the blood procurement program, the American Red Cross—here represented by F. S. Laise (right), deputy manager of the midwestern area—presents a citation to John M. Budd, president of the GN. The car, which has visited hundreds of small communities in Minnesota, Wisconsin and the Dakotas, was equipped and is operated by the road without cost to the Red Cross.**


**WHEN THE STORES AREA within the diesel shop was crowded out because more repair area was needed, the Frisco built a new structure . . .**

**WHICH HAD A FULL BASEMENT connected by tunnel to the diesel shop, permitting delivery of heavy items direct to point of use in shop.**

**SMALLER ITEMS are stored on the main floor of the windowless building, which has fluorescent lighting and forced ventilation throughout.**

# Storehouse-to-Shop Tunnel

## Frisco gains added diesel repair space by building new storehouse, connected to shop by tunnel and platform

A new structure to replace store facilities built into the St. Louis-San Francisco's diesel shop at Springfield, Mo., has been constructed to permit turning the former storage space into increased repair area to handle the all-dieselized road's growing fleet of diesel locomotives. The new building was so designed and located that most of the advantages of the original scheme of having the stores area in the shop building were retained.

The new building adjoins the diesel shop at ground level and is separated from it by a 20-ft. platform. The two buildings are connected by a tunnel at basement level, through which heavy items needed in the shop can be delivered direct to point of use by fork truck. Among heavy items stored in the basement are traction motors, main generators, cleaning compounds, lube oil additives and open drums from which small amounts of fluid are issued.

The smaller items, which are stored on the main floor, and which are delivered to the shop across the platform, are similarly easily and safely handled under all weather conditions because portions of the outside platforms are equipped with radiant heating.

The building is constructed of brick, without windows except in one corner where the storekeeper's office is located. It is 72 ft. wide by 125 ft. long, with a full basement housing an oil room, as well as the storage facilities for heavy items which extend the length of the building and under the platform at the west end. While this type of building is something new in railway storekeeping, because the practice has been to use as many and as large windows as possible, the Frisco believes its design will prove to be better from the standpoint of maintenance. Fluorescent lighting throughout and forced ventilation actually make windows unnecessary; so far as employees are concerned, they do not even seem to miss the windows.

The main floor of the building houses steel shelves 7 ft. 3 in. high and 24 in. wide back to back, giving shelves 24 in. and 48 in. wide in 3-ft. units. The shelving is placed in rows, from the main aisle which runs along the north wall, to the south wall in units of 15 ft. each. Thus, easy access to each shelf is afforded.

Delivery of materials is facilitated by a 14-ft. wide unloading platform with a 3-car service track on the north side of the new building and a 14-ft. highway truck platform on the west end. There are two 8-ft. service doors on the unloading platform side and a ramp leading to ground level.

The "locator," or storage by size, method is used for indexing stored materials, and a double location record is maintained. One record consists of a set of cards in drawers at the delivery counter filed in locomotive part builder's numerical order, and the other is kept on the perpetual inventory basis.

## GROSS TON-MILES PER EMPLOYEE HOUR AND PER DOLLAR OF WAGES

| Year | Employee hours paid for Millions | Total employee compensation Millions | Average compensation per hour—(all time paid for) | Gross ton miles* Billions | Gross ton-miles Per employee hour paid for | Gross ton-miles employee dollar of compensation |
|---|---|---|---|---|---|---|
| 1939 | 2,488.6 | $1,863.3 | $0.749 | 1,089.3 | 438 | 585 |
| 1940 | 2,615.9 | 1,964.1 | .751 | 1,181.9 | 452 | 602 |
| 1941 | 2,989.8 | 2,331.7 | .780 | 1,413.2 | 473 | 606 |
| 1942 | 3,441.0 | 2,932.1 | .852 | 1,756.9 | 511 | 599 |
| 1943 | 3,816.4 | 3,520.9 | .923 | 1,939.5 | 508 | 551 |
| 1944 | 3,996.9 | 3,858.0 | .965 | 1,985.3 | 497 | 515 |
| 1945 | 3,981.3 | 3,859.9 | .970 | 1,865.6 | 469 | 483 |
| 1946 | 3,633.3 | 4,170.2 | 1.148 | 1,662.8 | 458 | 399 |
| 1947 | 3,613.4 | 4,350.2 | 1.204 | 1,739.7 | 481 | 400 |
| 1948 | 3,546.2 | 4,768.8 | 1.345 | 1,701.5 | 480 | 357 |
| 1949 | 3,019.6 | 4,419.4 | 1.464 | 1,487.0 | 492 | 336 |
| 1950 | 2,877.5 | 4,593.7 | 1.597 | 1,588.2 | 552 | 319 |
| 1951 | 2,980.1 | 5,274.6 | 1.770 | 1,680.8 | 564 | 319 |
| 1952 | 2,846.2 | 5,328.4 | 1.872 | 1,632.7 | 574 | 306 |
| Percent of change 1952 vs. 1939 | −14.4 | +186.0 | +150.0 | +49.9 | +31.1 | −47.7 |

*Represent gross ton-miles of cars, contents and cabooses in both freight and passenger services.

(*Continued from page 13*)
employee dollar of compensation. By 1952, this had dropped to 306 gross ton-miles.

Meanwhile, however, gross ton-miles per employee hour paid for rose 31.1 per cent—from 438 in 1939 to 574 in 1952. Much of this rise occurred in the postwar years; and it "no doubt reflects in no small part the rapid rise in use of diesel-electric motive power," the bureau said.

Figures for each year of the 1939-1952 period are shown in the above table, reproduced from the "Comment."

## Railroad Wage Board Issues Final Report

The Railroad and Airline Wage Board, which administered wage controls from mid-October 1951 until February 6 of this year, has issued a final report on its activities. The board's staff was terminated as of April 10.

Chairman Nelson M. Bortz reported that the board processed 1,402 cases during its lifetime, about 69 per cent of which involved the railroads. The board approved 84 per cent of the petitions submitted to it and modified or denied 16 per cent, Mr. Bortz said.

The R.A.W.B. was established under the Defense Production Act, which called for a separate board to administer stabilization controls over carriers and employees subject to the Railway Labor Act.

In addition to Mr. Bortz, other members of the board were Francis A. O'Neill Jr., chairman of the National Mediation Board, and Walter T. Nolte of the Department of Justice.

# Traffic

## "Super Perishable Service"

### The Santa Fe proposes third morning arrival at Chicago for California fruits and vegetables

An emergency application to operate a "super perishable freight service" has been filed by the Santa Fe with M. F. Edbrooke, chairman of the Trans-Continental Freight Bureau at Chicago.

The service will be offered to perishable freight shippers from Bakersfield, Cal., or San Bernardino, to Chicago on or about May 1 if the application is approved. The application says the road will handle a minimum of 15 cars of fresh fruits and vegetables into Chicago on a third-morning arrival basis. Departure will be at 8 p.m. from either of the California points and the overall schedule will be 62 hours.

The application also states that a surcharge of $1.20 per 100 lb.—in addition to the applicable freight rate—will be collected by the Santa Fe.

In describing the proposed service, the Santa Fe's application indicates that no cars are to be destined to any point between the West Coast and Kansas City. There will be no diversion or reconsignment privileges west of Kansas City. Refrigeration charges are to be assessed under provisions of the Perishable Protective Tariff regulations.

The road says the proposed service "responds to requests from shippers of perishables, particularly grapes and tree fruits." It adds: "It is anticipated that equipment will be available whenever it is desired to move these commodities on a faster schedule to eastern markets than is now available in normal freight movement."

## D.T.A. Says Army's Tank Car Needs Will Be Met

Increased army requirements for tank cars to handle sulphuric acid resulted in an April 7 conference where the Defense Transport Administration assured the Defense Department that army needs "will be met."

A joint D.T.A.-Defense statement said requirements for acid-carrying tank cars have increased because of the army's ammunition program. The Department of Agriculture and Petroleum Administration for Defense also participated in the conference.

# Operations

## New Haven, B&M Add More Trains

The New Haven will add 42 trains to its schedules, and the Boston & Maine 19, when daylight saving time becomes effective on April 26. Several of the new trains on both railroads are customary additions to summertime service. Many will involve use of Budd-built rail diesel cars.

Of the New Haven's new trains, 15 will be on the west end of the line, 25 on the east end and two between Bos-

### *A NEW DALLAS ENTRANCE FOR THE SANTA FE?*

**"The Santa Fe has been conducting discussions with the St. Louis Southwestern to determine the practicalities of shortening the Santa Fe's entrance into Dallas, Texas, from the north and thus being in position to provide new and direct service between Dallas on the one hand, Kansas City and Chicago or points beyond on the other hand," Fred G. Gurley, Santa Fe president, said in Chicago on April 13.**

**"The plan being considered contemplates construction of some 38 miles of new track by the Santa Fe from its main north-south line near Sanger to Addison and obtaining trackage rights on the Cotton Belt between Addison and Dallas.**

**"A contract is now being drafted covering joint use of the trackage between Addison and Dallas and assuming that the contract is consummated, the Santa Fe will then file an application with the Interstate Commerce Commission to obtain the necessary authority. Presently the Santa Fe serves Dallas by way of Fort Worth and Cleburn. The proposed new arrangement would shorten the company's present route by about 70 miles between Dallas and Chicago and intermediate points."**

ton and New York. Beginning June 26, the "East Wind," operated jointly by the two roads, will again go into daytime service between New York and Portland, Me. This train has not been operated since 1950. It will leave New York at 10:30 a.m. and connect at Portland with the B&M's "Pine Tree" at 6:45 p.m. On the return trip it will leave Portland at 10:40 a.m. with a connection from Bangor and Rockland.

## Competitive Transport

# Air-Travel Hazard 6½ Times Rail

**That was the situation in 1952, when passenger fatality rates per billion passenger-miles were 3.6 and 0.56**

Travel last year by regularly scheduled domestic air lines was 6½ times more hazardous than travel by rail.

The comparative figures were published by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in its latest "Monthly Comment." They showed the air lines' fatality rate per billion passenger-miles was 3.6 compared with the railroad's rate of 0.56.

Both figures were record lows. They compared with 1951 rates of 13 for air lines and 4.16 for railroads. In that year, therefore, travel by air was three times more hazardous than by rail.

The figures also showed that 19 passengers were killed on railroads in 1952, while passenger fatalities on air lines totaled 46. Fatalities in 1951 were 144 and 142, respectively.

During the 14 years from 1939 through 1952, the railroads' passenger-fatality rates ranged from 1952's 0.56 to 1950's 5.57. The rates of air lines ranged from 1952's 3.6 to 1942's 36.6.

# Steamship Line Drops Rail Suit

**Canada Steamship Lines had challenged legality of rail freight rate reductions between eastern and western Canada**

A Supreme Court of Canada suit challenging the legality of $7,000,000-a-year reductions in rail freight rates between eastern and western Canada has been removed from the court's case list. Canada Steamship Lines, which almost a year ago had asked the court to disallow the federally subsidized reductions of its rail competitors, has received from the court an indefinite postponement of hearings on the action.

C.S.L., whose lake and river fleet vies with the railways for traffic between east and west, had challenged a Board of Transport Commissioners order applying the rate-reducing subsidy voted by Parliament (*Railway Age*, April 28, 1952, page 12).

The steamship company told the court in its original attack that its own revenues would be hit by the railway rate reductions. It estimated a drop in revenues of about $200,000 a year through lowering of its rates necessary to match those of the railways.

## Air-Freight Trucking Gets Relief from Regulation

Trucking which is "incidental to transportation by aircraft," and thus partially exempt from regulation under the Interstate Commerce Act, includes all highway movements "in bona fide collection, delivery or transfer of shipments which have been received from, or will be delivered to, an air carrier as part of a continuous movement under a through air bill of lading covering in addition to the line-haul movement by air the collection, delivery or transfer service performed by motor carrier."

Division 5 of the Interstate Commerce Commission has written this rule in deciding a case involving "terminal" trucking operations in connection with air freight service to and from the Allegheny County Municipal Airport and the Greater Pittsburgh Airport. The decision was embodied in the division's report on reconsideration in No.MC-5485(Sub-No.1)

The effect is to let tariffs of the air carriers determine the terminal areas within which the auxiliary trucking is exempt from I.C.C. regulation except as to safety requirements. Its interpretation of the exemption, the division said, is based on the "assumption" that the Civil Aeronautics Board "will not hesitate to reject" any airline tariff which would result in an "unreasonable enlargement" of the line's terminal area.

American Trucking Associations had sought to have the division adopt a rule that would confine the exempt trucking to movements to and from points in the commercial zone of the city or cities served by the airport involved. Intervening railroads agreed generally with that position. The division, however, said it was convinced that any attempt to so limit the exempt trucking "would be most difficult and impractical." It then proceeded to promulgate the rule set out above, calling it "a more feasible and reasonable solution."

## Post Office Presents Case For Parcel Post Increase

The Post Office Department's case for higher parcel post rates was presented to the Interstate Commerce Commission last week as hearings opened before Commissioner Mitchell and Examiner Hosmer.

The department is seeking a general increase amounting to about 36 per cent over present rates. As the hearings opened the pending petition was amended to add proposals for increasing so-called catalog rates and rates on "controlled circulation" publications.

These rate increases, the department said, are designed to put the parcel post service on a self-supporting basis. The department estimated the hike in zone-rate parcel post would produce $153,525,159 additional revenue on an annual basis.

"It is the department's view that the overall effect of the proposals submitted for the consent of the commission will provide revenues sufficient to pay the cost of performing the fourth-class mail service," said Nelson B. Wentzel, assistant executive director of the department's Bureau of Finance.

The Railway Express Agency joined in support of the department's plea for higher rates.

### *BURCHMORE WANTS POST OFFICE TO ALTER PETITION*

**John S. Burchmore, representing the National Council of Business Mail, filed a "demurrer" motion on April 16, the effect of which would be to require the Post Office Department to submit a new petition in the parcel post case.**

**Mr. Burchmore would have the new petition extend beyond rates and include proposals for "reformations of size and weight limitations or such other reformations as may be necessary." He contended that existing law does give the Postmaster General authority to revise size and weight limitations to reduce the parcel post deficit.**

**Commissioner Mitchell decided the motion required a ruling by the entire commission; and he delayed further hearings in the case until April 28.**

## C.A.B. Cites Three Goals In Its Current Program

The Civil Aeronautics Board has three major objectives in its present program of overseeing the nation's air carriers.

Chairman Oswald Ryan outlined these objectives to the House Interstate Committee recently. He said the board's current aim is to: (1) Place the air line industry on a self-supporting basis and free it from government subsidy; (2) bring air transportation to its maximum usefulness by placing it within the reach of millions of persons of average means and by extending it to smaller communities, and (3) accomplish progressive improvement in safety of air operations.

Mr. Ryan's comment on the role of irregular air carriers served to point up a reason why railroads are handling fewer troop movements these days.

"The present authority granted to the irregular (air) carriers permits . . . blanket exemption to enter into plane load contracts with the military on a regular basis, without restriction for passengers and/or property throughout the world. It is estimated that these military contracts represent between 30 and 40 per cent of their total revenue.

"The board has also granted the irregular carriers authority to carry military personnel and their dependents on common carrier flights to and from military bases to any points in the United States."

## Figures of the Week

# Diesels Were Big Fuel Savers in '52

### 16.1 cents per 1,000 gross ton-miles of road freight service compared with 31.1 cents for coal-burning steam locomotive —passenger service showing nearly as good

The fuel cost per 1,000 gross ton-miles of road freight service performed in 1952 by diesel-electric locomotives averaged 16.1 cents. This was a little more than half the fuel cost — 31.1 cents—of a like amount of freight service performed by coal-burning steam locomotives.

The comparison was made by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in its latest "Monthly Comment." The figures covered Class I roads, including switching and terminal companies.

They also showed, as to road freight service, that fuel costs per 1,000 gross ton-miles performed by oil-burning steam locomotives and electric locomotives were 37.1 cents and 28.8 cents, respectively. As to yard service, fuel costs per switching locomotive hour were: Diesel-electrics, 69.8 cents; coal burners, $2.40; oil burners, $2.79; electrics, $1.19.

As to passenger service, fuel costs per passenger-train car-mile were: Diesel-electrics, 3 cents; coal burners, 5.5 cents; oil burners, 4.3 cents electrics, 3.9 cents.

The "Comment" article also had figures showing that diesel-electrics last year performed 64.95 per cent of road freight service, but accounted for only 48.01 per cent of that service's fuel costs. Likewise, they performed 71.5 per cent of the passenger service and 76.64 per cent of yard service; but their proportions of those services' fuel costs were only 61.39 per cent and 48.9 per cent, respectively.

**ONE OF THE LAST remaining segments of Ohio's once vast network of interurban electric railways has passed into history—a "victim" of dieselization. The Ohio Edison Company, until it purchased the Caterpillar-powered Plymouth diesel locomotive shown in the foreground, operated an eight-mile segment of the former Columbus, Delaware & Marion Railroad from Marion to Scioto with the trolley freight motor visible in the left background, to handle coal into its Scioto power plant. While the rails will remain, retirement of this lone electric freight motor virtually concludes the last chapter of Ohio's interurban history.**

## Railroads Safer Than Factories in '51, Not '52

Data on accidents to employees indicate the 1951 frequency rate (injuries per million man-hours worked) was 15.27 on railroads, compared with 15.5 for manufacturing industries as a whole.

The data were published by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in its latest "Monthly Comment." The railroad figures came from the bureau's own records while the comparative figures for other industries came from the Bureau of Labor Statistics of the Department of Labor.

The 1951 frequency rates of transportation industries, other than railroads, included these: Trucking and hauling, 38.5; local transportation systems, 15.9; warehousing and storage, 37.4; stevedoring, 76.5. Rates were also shown for these three non-manufacturing industries: Construction, 39.3; trade, 12.9; coal mines, 51.8.

In its discussion of the showing, the I.C.C. bureau said preliminary data indicate the 1952 railroad rate will be 14.17, while the rate for manufacturing industries as a whole will be down to 13.5.

## Freight Car Loadings

Loadings of revenue freight in the week ended April 11 totaled 721,139 cars, the Association of American Railroads announced on April 16. This was an increase of 16,622 cars, or 2.4 per cent, compared with the previous week; an increase of 30,387 cars, or 4.4 per cent, compared with the corresponding week last year; and a decrease of 56,-

850 cars, or 7.3 per cent, compared with the equivalent 1951 week.

Loadings of revenue freight for the week ended April 4 totaled 704,517 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, April 4

| District | 1953 | 1952 | 1951 |
|---|---|---|---|
| Eastern | 125,825 | 125,869 | 135,976 |
| Allegheny | 130,334 | 147,208 | 154,700 |
| Pocahontas | 46,073 | 48,789 | 53,054 |
| Southern | 132,283 | 129,410 | 131,807 |
| Northwestern | 99,874 | 81,825 | 83,567 |
| Central Western | 110,997 | 114,008 | 120,470 |
| Southwestern | 59,131 | 59,780 | 59,949 |
| Total Western Districts | 270,002 | 255,613 | 263,986 |
| Total All Roads | 704,517 | 706,889 | 739,523 |
| Commodities: | | | |
| Grain and grain products | 41,376 | 41,776 | 49,071 |
| Livestock | 7,034 | 7,733 | 7,717 |
| Coal | 96,393 | 111,060 | 121,944 |
| Coke | 13,416 | 14,075 | 14,983 |
| Forest products | 45,423 | 42,366 | 47,827 |
| Ore | 44,999 | 27,977 | 21,699 |
| Merchandise l.c.l. | 71,458 | 77,801 | 82,789 |
| Miscellaneous | 384,418 | 384,161 | 393,493 |
| April 4 | 704,517 | 706,889 | 739,523 |
| March 28 | 715,337 | 725,487 | 755,435 |
| March 21 | 701,142 | 720,009 | 748,878 |
| March 14 | 700,108 | 708,975 | 745,128 |
| March 7 | 685,016 | 713,112 | 749,522 |
| Cumulative total 14 weeks | 9,589,025 | 10,047,281 | 10,233,481 |

**In Canada.**—Carloadings for the ten-day period ended March 31 totaled 98,149 cars, according to the Dominion Bureau of Statistics.

| | Revenue Cars Loaded | Total Cars Rec'd from Connections |
|---|---|---|
| Totals for Canada: | | |
| March 31, 1953 | 98,149 | 48,340 |
| March 31, 1952 | 98,588 | 49,369 |
| Cumulative Totals | | |
| March 31, 1953 | 916,416 | 406,920 |
| March 31, 1952 | 975,851 | 461,680 |

## January Accidents

The Interstate Commerce Commission has made public its Bureau of Transport Economics and Statistics' preliminary summary of "steam railway" accidents for January. The compilation, subject to revision, follows:

| Item | Month of January 1953 | 1952 |
|---|---|---|
| Number of train accidents* | 807 | 904 |
| Number of accidents resulting in casualties | 58 | 54 |
| Number of casualties in train, train-service and nontrain accidents: | | |
| Trespassers: | | |
| Killed | 63 | 46 |
| Injured | 67 | 66 |
| Passengers on trains: | | |
| (a) In train accidents* | | |
| Killed | .. | .. |
| Injured | 72 | 19 |
| (b) In train-service accidents | | |
| Killed | 2 | |
| Injured | 162 | 148 |
| Travelers not on trains: | | |
| Killed | 1 | 1 |
| Injured | 83 | 56 |
| Employees on duty: | | |
| Killed | 31 | 34 |
| Injured | 1,669 | 1,997 |
| All other nontrespassers:** | | |
| Killed | 146 | 167 |
| Injured | 573 | 577 |
| Total—All classes of persons: | | |
| Killed | 243 | 248 |
| Injured | 2,626 | 2,863 |

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of $325 or more to railway property in 1952. Beginning January 1, 1953, this minimum was raised to $350. Only a minor part of the total accidents result in casualties to persons, as noted above.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers*, were as follows:

| Persons: | | |
|---|---|---|
| Killed | 137 | 154 |
| Injured | 401 | 403 |

# Accounting

## A.A.R. Will Issue Statistical Manual

The Association of American Railroads plans to issue a "Railway Statistical Manual," which will "bring together in a single handbook the working tools most frequently used by railroad statistical officers and personnel in preparation and analysis of transportation statistics and related work."

The manual will be prepared and published, "within four or five months," by the Committee on Statistics of the A.A.R.'s Accounting Division. The committee approved the project "after extensive study and selection of material," the A.A.R. announcement said. It added:

"The collection of such information in a compact, convenient arrangement should not only serve as a useful reference source, but also should be a valuable aid to employees on the job and for training personnel."

The manual will be in loose-leaf form, and will include 13 sections, totaling about 275 pages.

## CAR SURPLUSES, SHORTAGES

**Average daily freight car surpluses and shortages for the week ended April 11 were announced by the Association of American Railroads on April 16 as follows:**

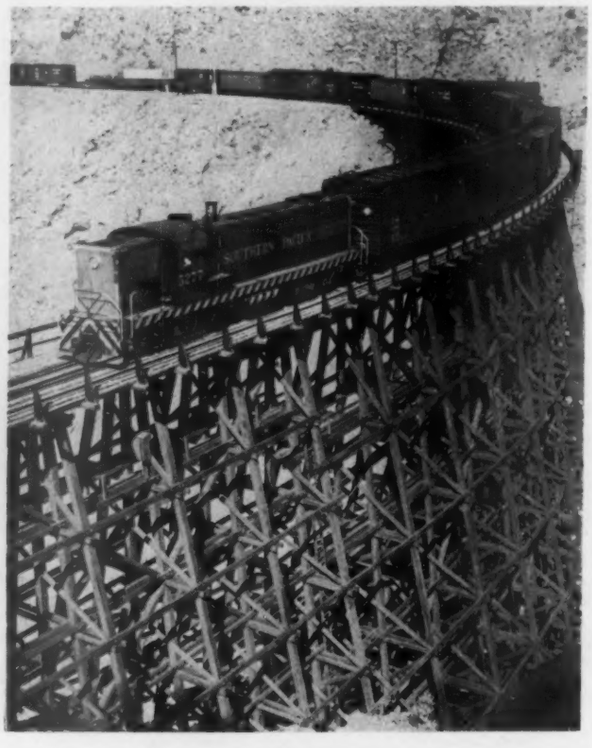
| | Surplus | Shortage |
|---|---|---|
| Plain Box | 5,084 | 525 |
| Auto Box | 58 | 33 |
| Total Box | 5,142 | 558 |
| Gondola | 4,123 | 68 |
| Hopper | 47,645 | 90 |
| Covered Hopper | 80 | 10 |
| Stock | 5,521 | 0 |
| Flat | 53 | 390 |
| Refrigerator | 2,946 | 0 |
| Other | 464 | 0 |
| Total | 65,974 | 1,316 |

# People in the News

## Leonard Heads F. R. P.

Dr. William N. Leonard, professor of economics and head of the Department of Economics and Commerce of Pennsylvania State College, has been elected president of the Federation for Railway Progress. He succeeds Thomas J. Deegan, Jr., who was elected chairman, a position formerly held by Robert R. Young, who will hereafter have the title of founder.

(*Continued on page 98*)



**HELPERS ARE SELDOM NEEDED, now that diesel road-switchers cover the San Diego & Arizona Eastern's 38-mile stretch of 2.2 per cent grade between Coyote Wells, Cal., and Hipass. This picture shows SD&AE freight No. 451 on a load-limiting trestle in Carriso Gorge.**

# why wheel shop men like chilled car wheels

AMCCW chilled car wheels are bored faster, more easily, with less wear on cutting tools, than any other type of car wheel—a saving in time, temper and equipment. A micrometer is used to measure the bore to the last thousandth of an inch.



The AMCCW wheels are pressed on the axle, one at a time, usually at pressures of 50 to 60 tons. Then the pressman measures at least three points around the mounted wheels to check for accuracy of gage, alignment, and direction of bore.

More brackets—thicker, heavier, more continuous flange support; heavier tread on both rim and flange sides.

AMCCW

In good supply
Available locally
Short-haul delivery
Reduced inventory
Low first cost
Low exchange cost
Increased ton mileage
High safety standards
AMCCW plant inspection
Easier shop handling

Wheel shop men can tell you quicker than anybody else how they can bore AMCCW chilled car wheels nearly twice as fast, with greater speeds and feeds . . . how they save time and reduce wear on expensive equipment . . . how they mount with a firm grip at only 50 to 60 tons pressure. Chilled car wheels are not only easier to mount, they make better safety records, because iron *likes* to cling to steel.

That's why AMCCW wheels are the most popular ones in the Wheel Shop. Other economic advantages of the chilled car wheel at left.

**ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS**

**445 North Sacramento Boulevard, Chicago 12, Ill.**

Albany Car Wheel Co. • American Car & Foundry Co.
Griffin Wheel Co. • Marshall Car Wheel & Foundry Co. • Pullman-Standard Car Mfg. Co.
Southern Wheel (American Brake Shoe Co.)

# New SEALED GREASE-LUBRICATED ELECTRO-MOTIVE TRACTION MOTOR

## *Sealed for the regular overhaul period*

AS A RESULT of Electro-Motive's continuing design and development program, we are now bringing out a new sealed, grease-lubricated traction motor. This motor requires no added lubrication for the entire overhaul period.

In this development, exhaustive tests were made to determine 1) the proper bearing, 2) the proper lubricant, and 3) the proper seal. The result is a completely engineered job, with fully compatible components, designed primarily to help railroads cut operating and maintenance costs.

### IMPROVED PINION END ROLLER BEARING

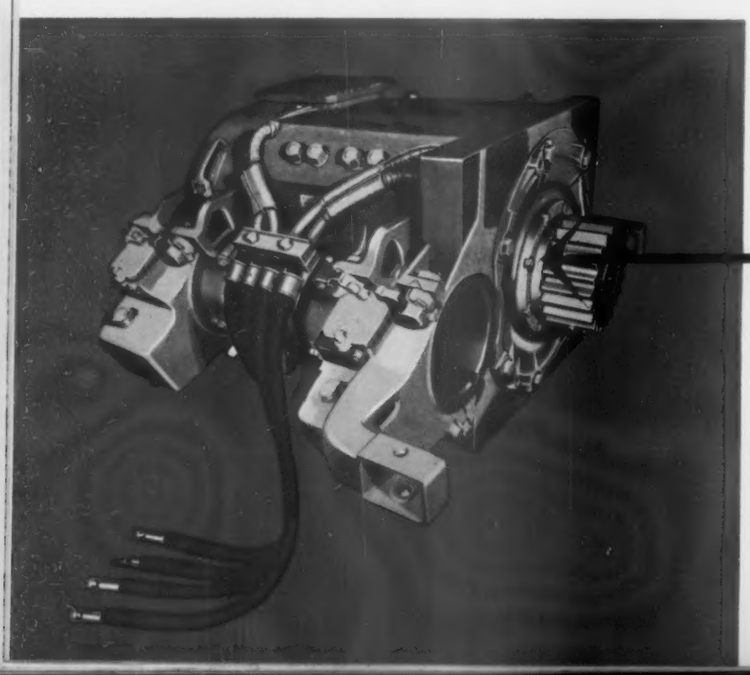
The new high-capacity bearing, with its *roller-riding* cage, replaces the flange-riding bearing. Easy to lubricate and inspect, the new steel cage is brazed and riveted. Its weight is carried on large-size rollers, eliminating all rubbing friction between the cage and the flange of the outer race. Interchangeable with *all* earlier Electro-Motive bearings, this bearing assembly incorporates a large "roller drop" for quick removal and inspection of all bearing parts.

### UNIFORM, STABLE GREASE

Developed especially to meet the demands of the toughest railroad service, the new grease will not decompose chemically or deteriorate in service. Extensive field tests have proved this grease stands up under load conditions far tougher than anything encountered in actual service. And it is sealed into the bearing for the entire period between overhauls.

### ONE-PIECE ARMATURE SHAFT GREASE SEAL

The new one-piece seal was designed specifically to prevent contamination of the bearing lubricant. With this seal, railroads can install the bearing and forget about lubrication.



Both the new roller bearing and the new one-piece seal are available for installation in your present Electro-Motive traction motors, including those with 12-tooth pinions. Call your Electro-Motive representative or write us for more information.


Fits ALL EMD Traction Motors OLD or NEW
New STEEL ROLLER RIDING CAGE
New UNIFORM, STABLE GREASE
ONE-PIECE ARMATURE SHAFT GREASE SEAL
ELECTRO-MOTIVE DIVISION
GENERAL MOTORS
GENERAL MOTORS LOCOMOTIVES
LaGrange, Illinois — Home of the Diesel Locomotive • In Canada: GENERAL MOTORS DIESEL, LTD., London, Ontar

*railroad and traffic executives*

---

*you are invited*

*to an advance showing and working exhibit of*

# General American's new AIRSLIDE® CAR

*for better bulk shipment of dry, granular and powdered materials*

**PLACE:** *Grand Central Passenger Station, Tracks 10 & 11, Harrison and Wells, Chicago*

**TIME:** *9 A.M. to 5 P.M.*

**DATES:** *Reserved for railroad and traffic executives on Monday and Tuesday, April 27 and April 28.*

*Open to the public on Wednesday and Thursday, April 29 and April 30.*

AIRSLIDE GENERAL AMERICAN TRADE MARK

**GENERAL AMERICAN TRANSPORTATION CORPORATION**

*135 South LaSalle Street • Chicago 90, Illinois*

# All about 6 G's *

## New test device reveals facts nobody knew

* "G", the unit of change in velocity which is equal to the pull of gravity or 32.2 feet per second per second.

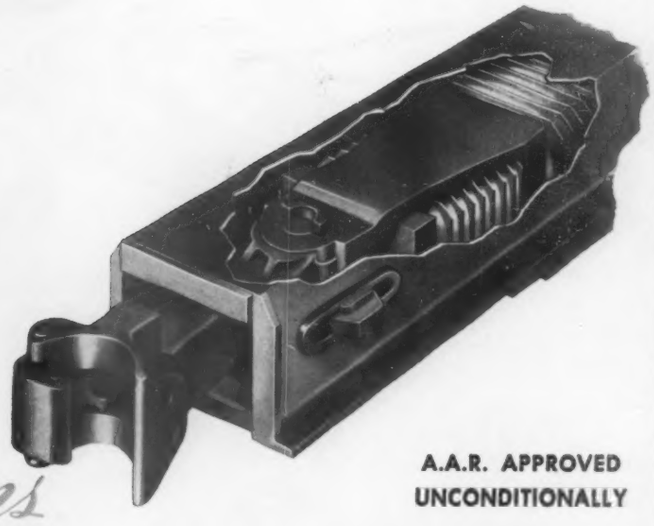
This new test device, the Waugh-Gould Coupler Dynamometer, provides the first accurate means of measuring coupler forces and reveals for the first time the stress rises that occur under car impact in 100ths of seconds.

With this new test instrument it has been possible, for the first time, to measure the rate of stress rise or "G" changes for cars under impact... to discover exactly how Twin Cushions 'take the bite out of impact.' The reason shown is this: Rate of stress rise for Twin Cushion is *far* less than for conventional gears indicating a corresponding shock reduction. It's the shock of impact that damages lading. As proved by the Dynamometer, Twin Cushions greatly reduce that shock. So, for shock reduction, for lading protection,

*for "G" control... Specify*

# WAUGHMAT

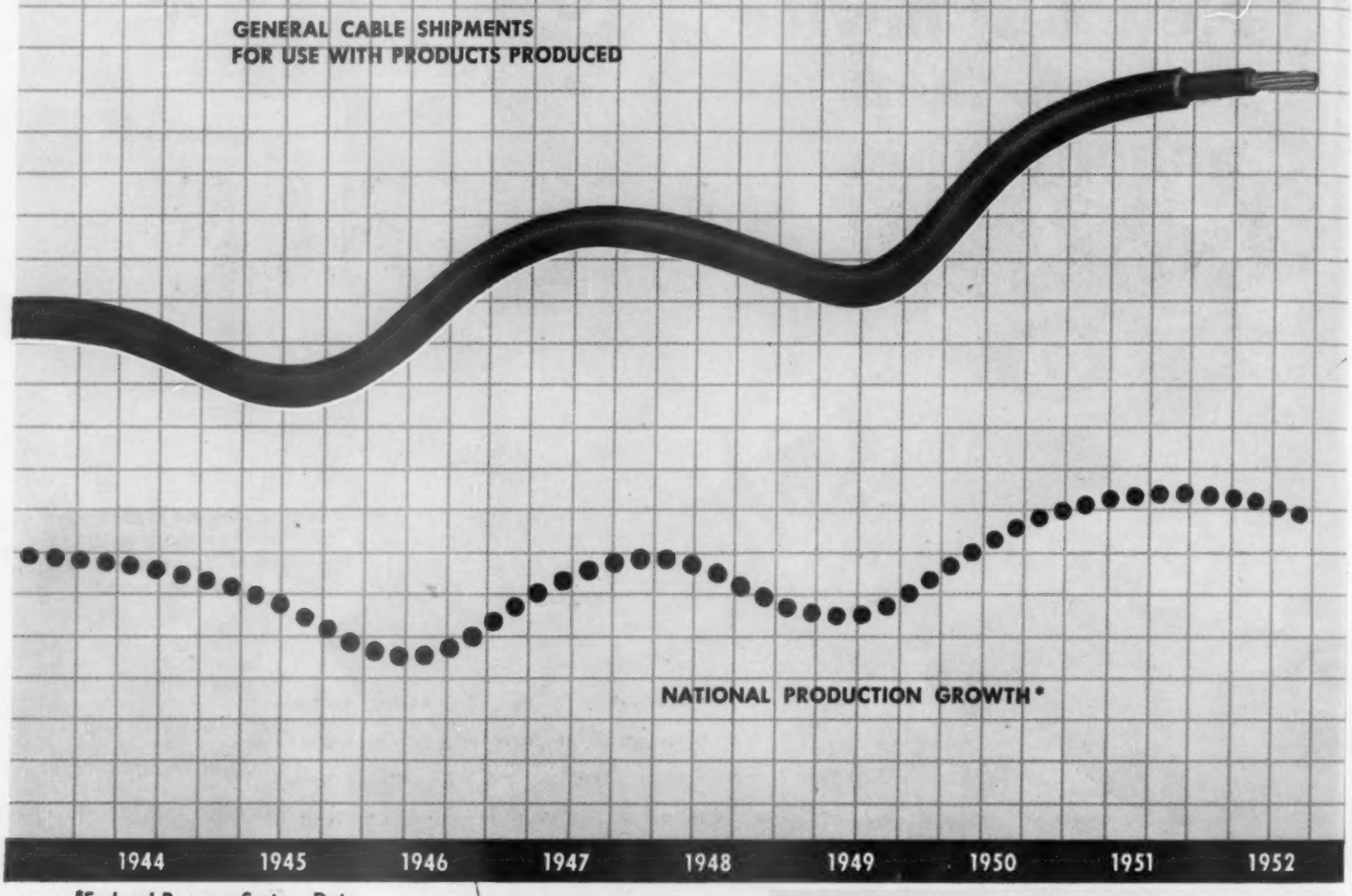
TRADE MARK REGISTERED *Twin Cushions*



**A.A.R. APPROVED UNCONDITIONALLY**

**WAUGH EQUIPMENT COMPANY, New York • Chicago • St. Louis • Canadian Waugh Equipment Company, Montreal**

# WITH EVER NEW PEAKS IN



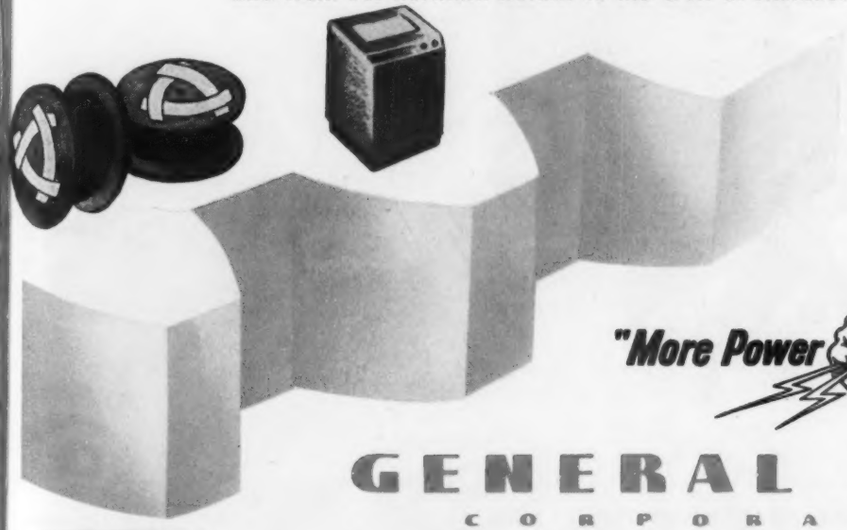

*Federal Reserve System Data

# NATIONAL PRODUCTION...

# GENERAL CABLE

## *Still means Consistent Dependable Supply*

During a 70 year span as a prime supplier of wire and cable to every industry, General Cable's growth has been part of America's ever-mounting national production. Anticipating production trends—with our sights always toward growth—our production is planned for smooth, adequate supply. Evidence is in the thousands of varied wires and cables manufactured in the chain of strategically located General Cable manufacturing plants. Your needs are serviced through our sales offices . . . through our wholesalers . . . from plants, warehouses, and distributor stocks that blanket the country from coast to coast, and from our northern border to the Gulf of Mexico.



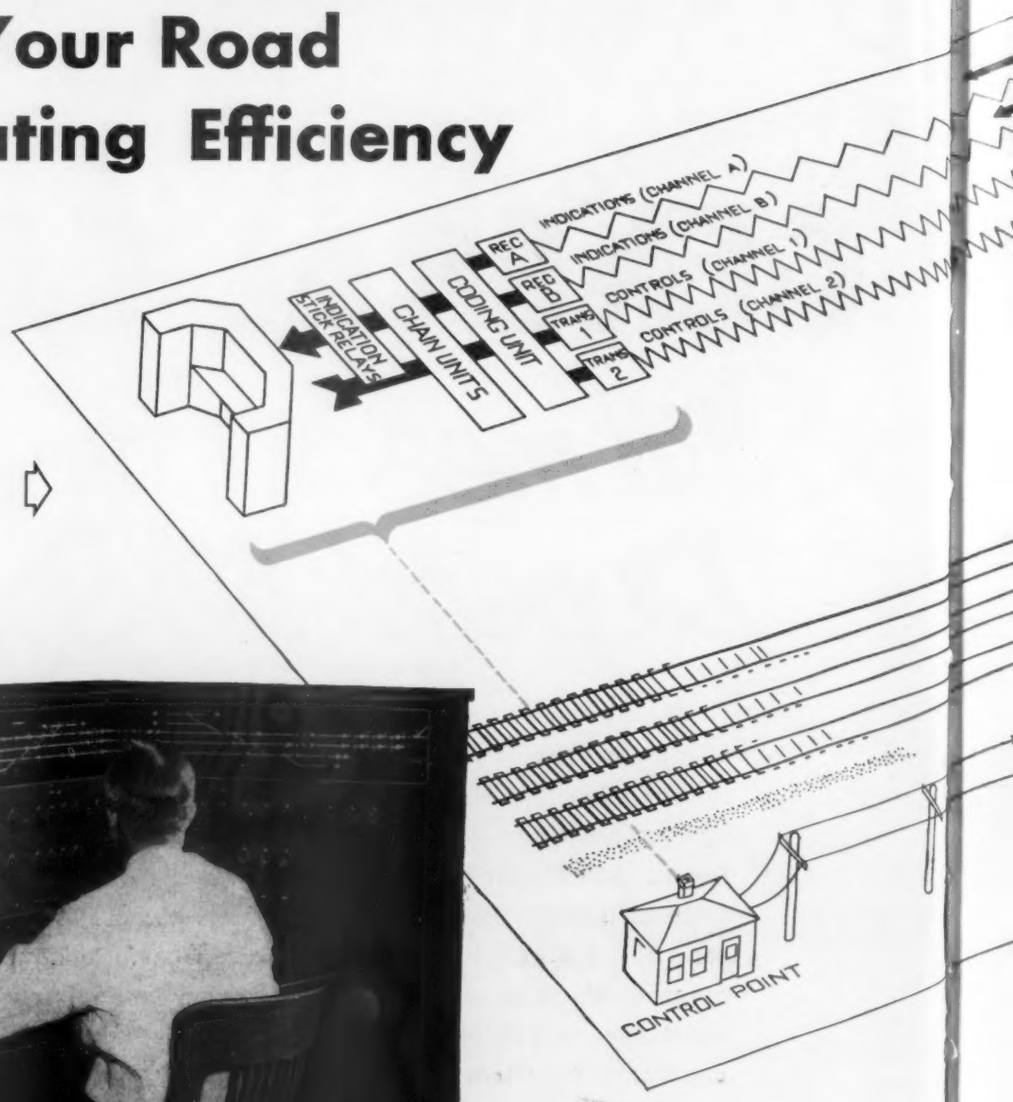
*"More Power to You"®*

**GENERAL CABLE**
CORPORATION

EXECUTIVE OFFICE: 420 LEXINGTON AVENUE, NEW YORK 17, NEW YORK • SALES OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES

# New High-Speed Coded Interlocking

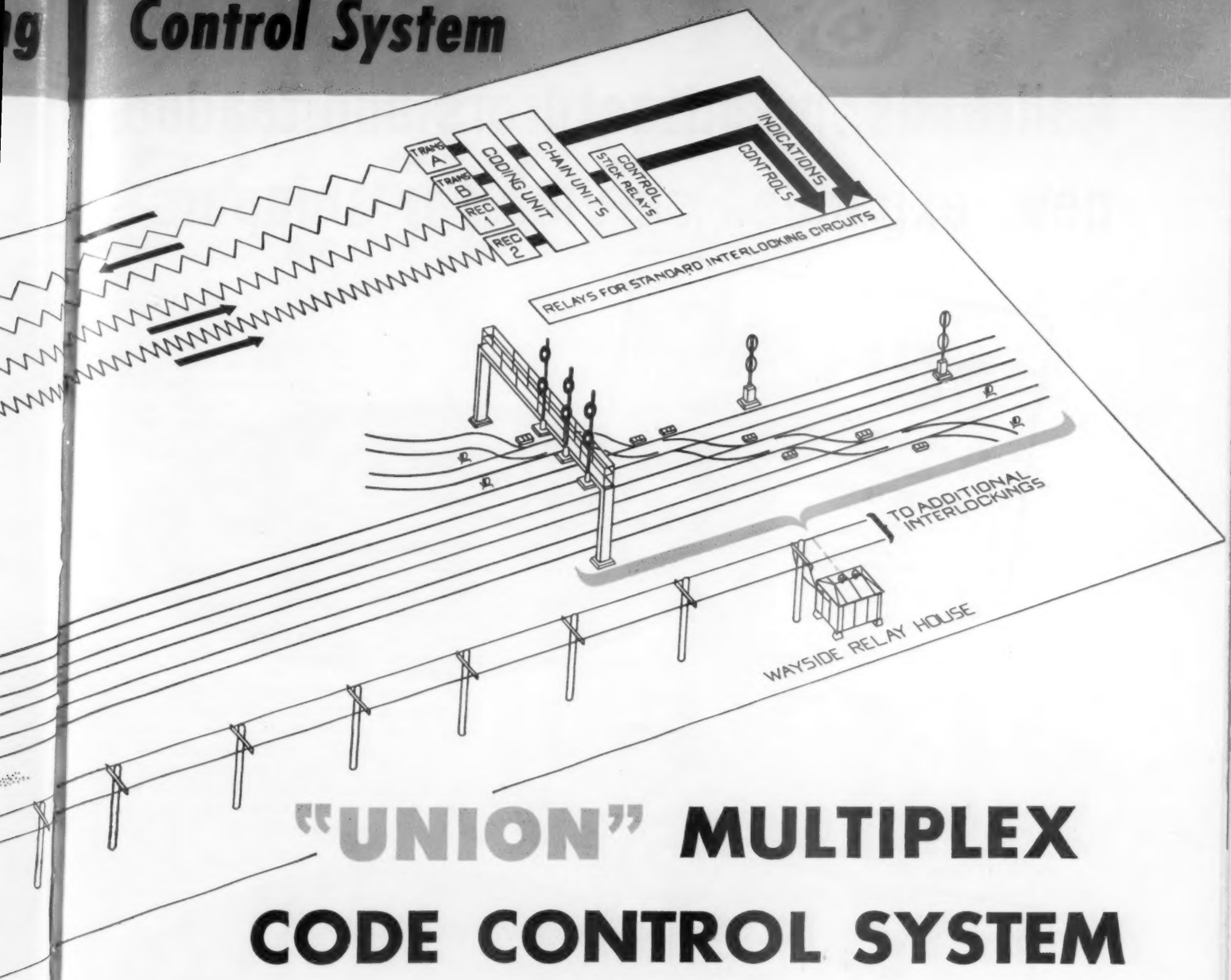
## Developed by "UNION" To Give Your Road Higher Operating Efficiency




**THIS SHOWS THE BASIC MULTIPLEX ARRANGEMENT** for one interlocking with coding speed of 25 controls . . . 50 indications per second. Additional interlockings, and associated Multiplex equipment, can be handled over the same pair of line wires.

**THE MULTIPLEX CODE CONTROL SYSTEM** uses standard Style C or UR control machines.

# Control System




# "UNION" MULTIPLEX CODE CONTROL SYSTEM

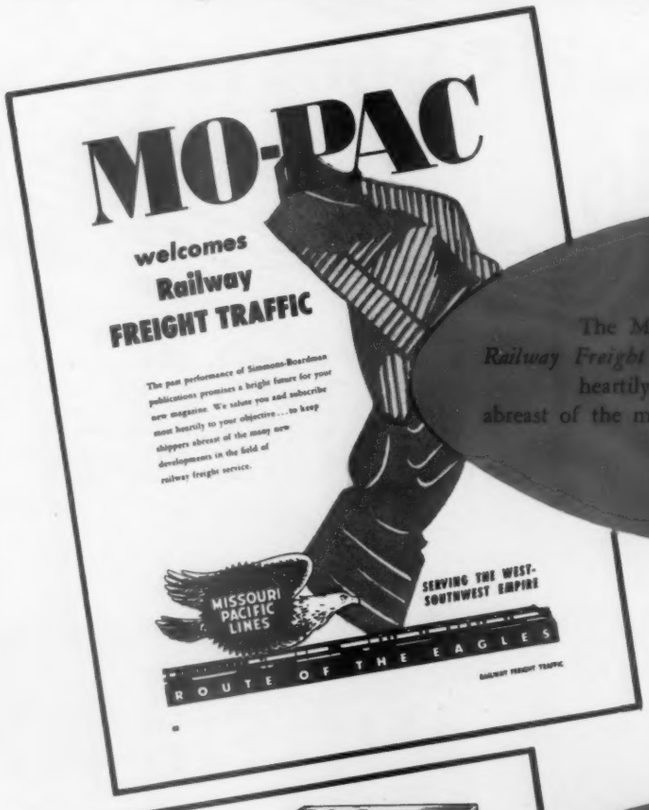
Are you planning to build a new remotely-controlled interlocking . . . modernize an older one . . . or consolidate present interlockings for greater economies? If you are, consider these features of the new "Union" Multiplex Code Control System:

- It's the fastest all-relay coded interlocking control system yet developed.
- Basic system transmits 25 controls and 50 indications per second. Can be expanded in multiples of 25 controls and 50 indications per second, such as 50 and 100 per second . . . 75 and 150 per second . . . *simultaneously* over one pair of line wires.
- Each code can contain complete control and indication information for all functions at the interlocking . . . therefore a complete route can be set up with one code.

The "Union" Multiplex Code Control System is designed especially for large and busy interlockings. May we tell you the rest of the story?

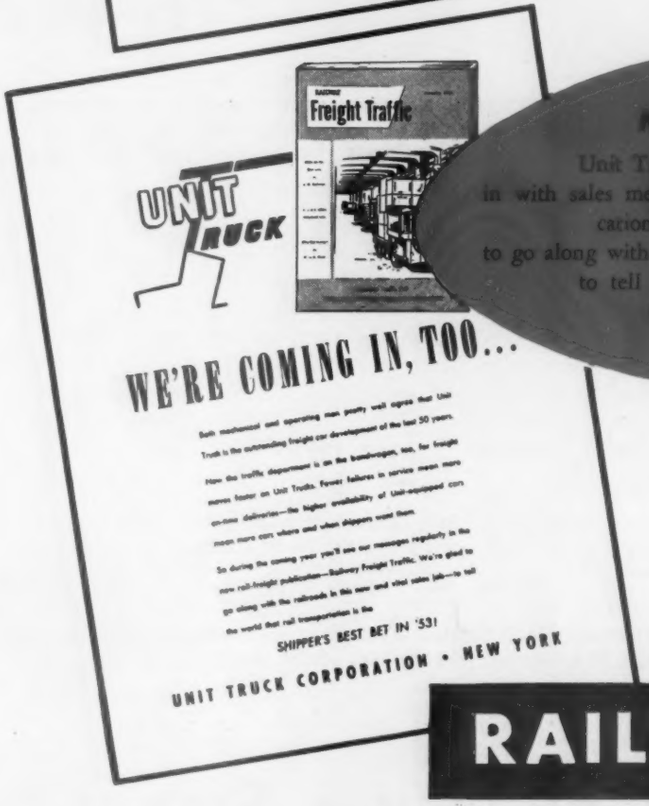
**UNION SWITCH & SIGNAL**
DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY
SWISSVALE PENNSYLVANIA
NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

# Railroads, manufacturers and readers new, expanded service for shippers—




**RAILROADS**

The Missouri Pacific Lines . . . "welcomes *Railway Freight Traffic*. We salute you and subscribe most heartily to your objective . . . to keep shippers abreast of the many new developments in the field of railway freight service."




**MANUFACTURERS**

Unit Truck advises railroads they're "coming in with sales messages regularly in the new rail-freight publication *Railway Freight Traffic*. We're glad to go along with the railroads in this new and vital sales job—to tell the world that rail transportation is the shipper's best bet in '53."

**RAILWAY FREIGHT**

# recognize the value of the completely *Railway Freight Traffic*

You and your organization are to be highly complimented on your accomplishment; I predict that it will become a very much read publication. It should prove to be very popular with both the railroad people and the industrial traffic managers.

*General Traffic Manager A Mid-Western Railroad*

I like this publication a great deal and I am enclosing a check for a year's subscription, to be sent to me. I am particularly interested in LCL matters. It seems that our carloads all take care of themselves. We are always having trouble on LCL.

*Gen. Traffic Manager Retail Chain Store Company*

I like its appearance and the selection of material it contains and if you will only maintain the high standard you here established, I predict that the new "baby" is headed for a long and useful career.

*Assistant to the President A Southern Railroad*

While it is not as voluminous as the *Railway Age*, it is on the whole more interesting to a person like myself because the articles in it deal more or less with problems that are of interest to shippers.

*Traffic Department Flour Mills*

We think it is instructive, and a great help to the railroads to have such a magazine sent to traffic managers. We represent over 100 shippers all over the United States and from publications such as RAILWAY FREIGHT TRAFFIC we in turn furnish this information to our shippers through our own bulletin service.

*Traffic Manager Traffic Management Service*

**READERS**

Shippers and railroaders around the country, in many different fields, are enthusiastically praising the appearance, contents and objectives in the first two issues . . . lauding this expanded service which affords railroads *for the first time* an advertising medium specifically devoted to rail-freight shipping information.

It gives sound and timely information on various topics relating to railway freight transportation. I have heard the remark from other traffic men a number of times, that concerns located in large centers seem to hear a lot about motor truck transportation through their association papers . . . but there seems to be very little information from railway freight channels. I believe that this new magazine will give traffic men information in regard to shipping by railway freight.

*Traffic Manager Food Equipt. Mfg. Co.*

I find the issue very interesting. We believe that your magazine has a very definite place in its field.

*Vice President A North Central Railroad*

RAILWAY FREIGHT TRAFFIC was well laid out . . . nicely illustrated . . . interesting stories . . . all of which makes for easy and informative reading. Congratulations.

*Dir. Publicity-Advertising A Mid-Western Railroad*

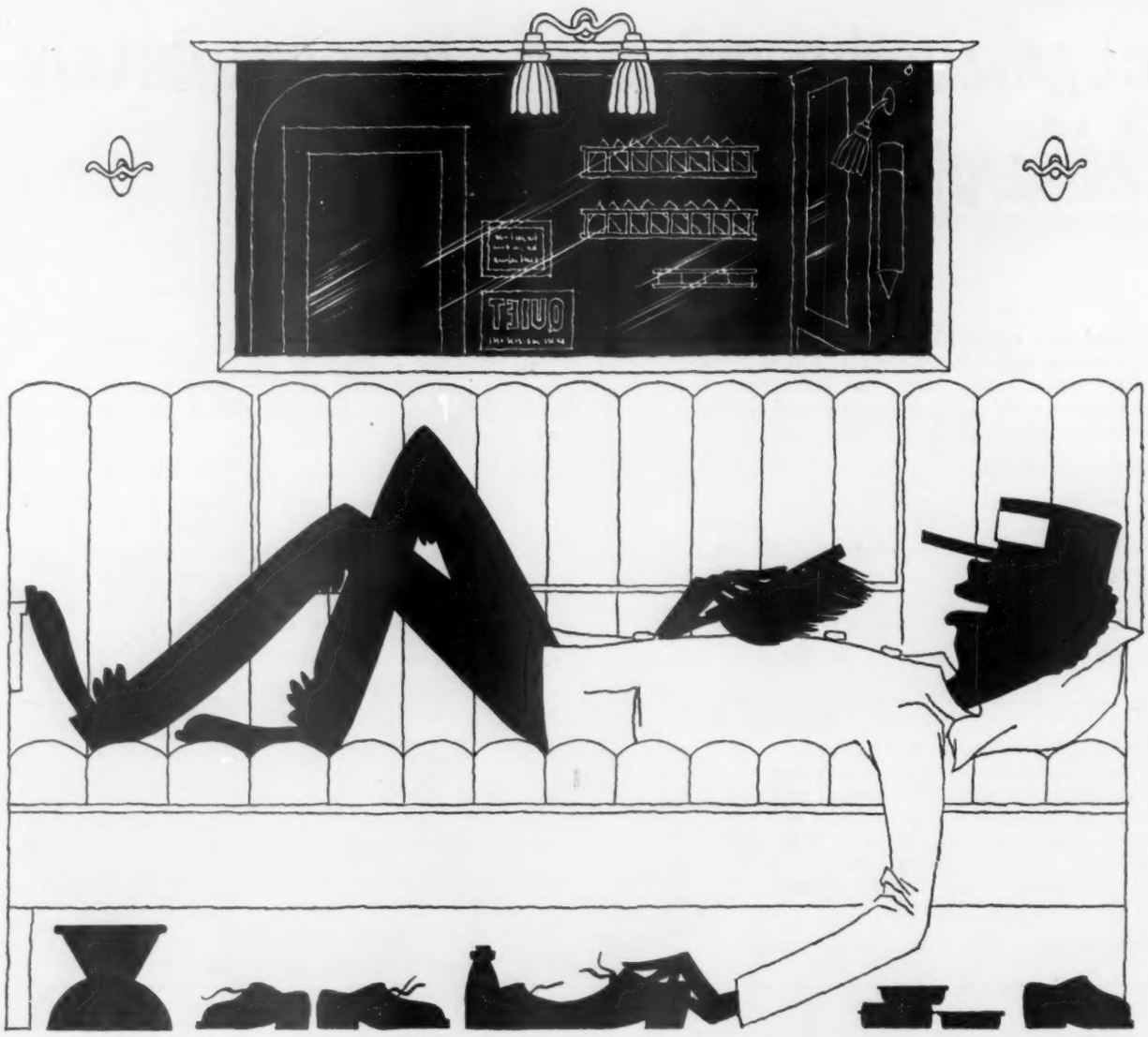
**RAILWAY FREIGHT TRAFFIC ADVERTISERS**

American Car & Foundry Co.
Association of Amer. Railroads
Atchison, Topeka & Santa Fe RR
Atlantic Coast Line RR
Baltimore & Ohio RR
Bessemer & Lake Erie RR
Buffalo Brake Beam Co.
Central Indiana RR
Chesapeake & Ohio Ry Co.
Chicago, Burlington & Quincy
Chicago & Eastern Illinois RR
Chicago & Illinois Midland Ry.
Chicago, Ind. & Louisville
Chicago & North Western Ry.
Chicago, Rock Island & Pacific
Chicago, S. Shore & South Bend
Colson Corporation
Delaware, Lackawanna & W.
Denver & Rio Grande Western
Elgin, Joliet & Eastern Ry.
Erie Railroad
Evans Products Co.
Great Northern Ry.
Illinois Central RR
Illinois Terminal RR
International Steel Co.
Kansas City Southern Lines
Lehigh & Hudson River Ry.
Little Giant Products
Mac Lean-Fogg Lock Nut Co.
Milwaukee Road
Minneapolis & St. Louis Ry.
Missouri-Kansas-Texas Lines
Missouri Pacific Lines
Mobilift Inc.
Nashville, Chatt. & St. Louis
National Carloading
New York Central
Norfolk & Western Ry.
Northern Pacific Ry.
Pennsylvania Railroad
Pittsburgh & West Virginia Ry.
Quanah, Acme & Pacific Ry.
Reading Company
Seaboard Air Lines RR
Seatrain Lines
Signode Steel Strapping Co.
St. Louis-San Francisco
St. Louis Southwestern
Soo Lines RR
Southern Ry.
Superior Car Door Co.
Texas & Pacific Ry.
Timken Roller Bearing Co.
Toledo, Peoria & Western Ry.
Union Pacific RR
Unit Truck Corp.
Wabash RR
Western Pacific

**TRAFFIC**

*a New Simmons-Boardman Publication*

**30 Church Street, New York 7, N. Y.**



# *Peace of mind on Armco wheels*

Peace of mind—it's wonderful! Today more than ever before you can put your confidence in Armco Wrought Steel Wheels. These wheels are made for today's stepped-up operating conditions—heavier loads and quicker stops. They are designed to withstand severe braking under passenger cars, and the high and complex stresses imposed by Diesel service.

Armco Wrought Steel Wheels are the result of 44 years of wheelmaking experience combined with a permanent program of research set up 18 years ago. Over the years, special laboratory tools have been developed to simulate—and even exceed—the most punishing service conditions on your roads.

From these tests we learn lessons that are applied directly to the production of Armco Wheels, from the melting of the steel to final treatment. Latest methods of quality control insure uniformity from wheel to wheel. The Armco Wrought Steel Wheel is built to "take it" and give you greater peace of mind.

You'll find it worth while to know more about Armco Wheels. Just write us at the address below.

## ARMCO STEEL CORPORATION

2603 Curtis Street, Middletown, Ohio
Export: The Armco
International Corporation

# Teletype handles over 11,000,000 messages per year for the Rock Island

The Teletype center shown above is in the Armourdale, Kansas, freight house of the Rock Island. It typifies the road's up-to-the-minute communications system.

In 1936, the entire Rock Island line used only 11 Teletype printers. Today 139 printers, 50 reperforators, 49 transmitter-distributors, one gang transmitter and 35 perforators provide a system-wide Teletype network which handles over 11 million printed messages each year.

A large part of the Rock Island's increased message traffic arises from the practice of transmitting wheel reports and consist reports by Teletype. These reports serve as advanced switch lists and are further used for car tracing.

Each Teletype printer is equipped with a hectograph ribbon so that multiple copies of messages may be prepared for distribution when necessary.

Today, 58 other American railroads besides the Rock Island rely on dependable, printed Teletype communications to speed message traffic.

TELETYPE
REG. U.S. PAT. OFF.
CORPORATION
SUBSIDIARY OF
*Western Electric Company*

**Rigidly controlled**

## *Heat treating processes*

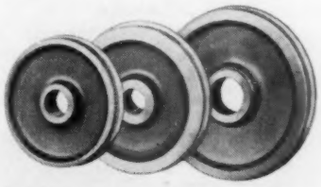
increase the service life

of **Edgewater** ROLLED STEEL **Wheels**

At Edgewater Steel, the art and science of heat treating have been highly developed, as they apply to the manufacture of car and locomotive rolled steel wheels. Many years of experience have guided Edgewater engineers and metallurgists in improving the heat treating process which increases the strength and ductility so essential to longer service life and increased safety.

The heat treating process at Edgewater is closely controlled so that dependable uniformity results.

Makers of Rolled Steel Wheels



Draft Gears and Rolled Steel Tires

**Edgewater Steel Company**

P. O. BOX 478 PITTSBURGH 30, PENNA.

**ARIZONA**

**Phoenix, Charlie C. Jones Battery & Elec. Co., 300-322 West Jefferson St.**

**CALIFORNIA**

**Los Angeles 21, Magneto Sales & Service Co., 751 Towne Avenue**
**Sacramento, Langner & Rifkin, 1116 Fifth Street**
**San Diego 1, Magneto Sales & Service Co., 1254 Kettner Blvd.**
**San Francisco 3, Furrer & Uster, Inc., 225—7th St.**
**San Francisco 3, H. G. Makelim Magneto Repair Co., 1583 Howard Street**
**Wilmington, Diesel Control Corporation, 218 North Marine Ave.**

**COLORADO**

**Denver 3, Central Supply Co., 1171 Lincoln Street**

**FLORIDA**

**Jacksonville 1, Spencer Electric Co., Inc., 40 West Beaver Street**
**Miami 36, Florida Diesel Service Co., 1930 North Miami Ave.**

**GEORGIA**

**Atlanta 3, Auto Electric & Magneto Co., 477 Spring Street, N. W.**

**ILLINOIS**

**Chicago 16, Illinois Auto Electric Co., 2011—37 Indiana Ave.**
**Rock Island, Lohse Automotive Service, Inc., 430 North Capitol Ave.**

**INDIANA**

**Indianapolis, Gulling Auto Electric, Inc., 450 North Capital Ave.**

**IOWA**

**Cedar Rapids, Edwards Carburetor & Electric Co., 209 Seventh St., S. E.**
**Des Moines 9, Electrical Service & Sales Co., 1313 Walnut Street**

**LOUISIANA**

**New Orleans 13, John M. Walton, Inc., 1050 Carondelet Street**
**Bossier City, Vaughan Tractor & Auto Parts Co., 605 West Street**
**Mail Address: P.O. Box 661, Shreveport, La.**

**MARYLAND**

**Baltimore 1, Parks & Hull Automotive Corp., 1033 Cathedral Street**

**MASSACHUSETTS**

**Boston 15, W. J. Connell Co., 121 Brookline Ave.**

**MICHIGAN**

**Detroit 2, Knorr-Maynard, Inc., 5743 Woodward Ave.**

**MINNESOTA**

**Minneapolis 6, Diesel Service Co., 2509 East Lake Street**
**Minneapolis 2, Reinhard Bros. Co., Inc., 11 South 9th Street**

**MISSOURI**

**Kansas City 8, Electrical & Magneto Service, Inc., 2538 Grand Avenue**
**St. Louis 23, Diesel Fuel Injection Service Co., 9331 South Broadway**

**NEBRASKA**

**Omaha 2, Carl A. Anderson, Inc., 16th and Jones St.**

**NEW JERSEY**

**Newark 2, Tire Trading Co., 239 Halsey Street**

**NEW YORK**

**Brooklyn 32, A & D Diesel Service, Inc., 145 21st St.**
**Brooklyn 16, E. A. Wildermuth, Inc., 1102 Atlantic Avenue**
**Buffalo 8, Hettrich Electric Service, 1032 Ellicott St.**
**Syracuse 4, F. A. Crossman, Inc., 943 Genesee St.**
**Troy, Ehrlich Electric Service, Inc., 200 Fourth St.**

**OHIO**

**Cleveland 14, Cleveland Ignition Co., 1301 Superior Ave., N. E.**

**OKLAHOMA**

**Tulsa 3, Magneto Ignition Co., 701 West 5th St.**

**OREGON**

**Portland 14, Automotive Products, Inc., 1700 Southeast Grand Ave.**

**PENNSYLVANIA**

**Hazelton, Penn Diesel Service Co., 27th & North Church Sts.**
**Philadelphia 32, J. W. Parkin, Jr., 2251 North Broad Street**
**Pittsburgh 13, Automotive Ignition Co., 6358 Penn Avenue**

**TENNESSEE**

**Memphis 4, Automotive Electric Service Co., 982 Linden Ave.**

**TEXAS**

**Dallas, Beard & Stone Electric Co., 3909 Live Oak Street**
**El Paso, Reynolds Battery & Magneto Co., 801 Myrtle Ave.**
**Houston 1, Beard & Stone Electric Co., Milam at Polk Street**
**Houston 11, Magneto & Diesel Injector Service, 6931 Navigation Blvd.**
**Odessa, Electric Service & Supply, 1601 North Grant Street**

**UTAH**

**Salt Lake City 2, Diesel Electric Service & Supply Co., 58 East 7th, South**

**VIRGINIA**

**Norfolk, Diesel Injection Sales & Service, 808 Union Street**
**Richmond 20, Charles H. Woodward Electric Co., 709 Broad Street**

**WASHINGTON**

**Seattle 1, Seattle Injector Co., 2706 Second Ave.**
**Seattle 14, Sunset Electric Co., 300 Westlake, North**
**Spokane 8, Sunset Electric Co., North 703 Division Street**

**WISCONSIN**

**Milwaukee 2, Wisconsin Magneto Co., 918 North Broadway**

***Canada***

**ALBERTA**

**Calgary, Hutton's, Ltd., 131—11th Avenue, West**

**BRITISH COLUMBIA**

**Vancouver, Magneto Sales & Service, Ltd., 126 Gore Avenue**

**QUEBEC**

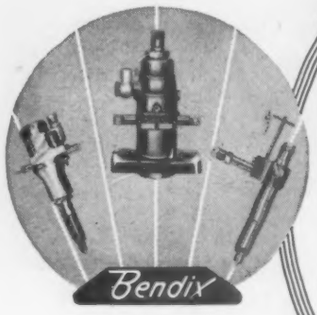
**Montreal, International Electric Co., 1037 Bleury Street**

***Alaska***

**ALASKA, TERRITORY OF**

**Anchorage, Reeve Alaska Airmotive, Merrill Field, P.O. Box 1160**

## DIRECTORY OF SERVICE STATIONS IN U.S.A.




# A NATION-WIDE *Authorized* SERVICE ORGANIZATION

Bendix

## FUEL INJECTION EQUIPMENT

SCINTILLA MAGNETO DIVISION of Bendix AVIATION CORPORATION
SIDNEY, NEW YORK
Western Office: 582 Market Street, San Francisco 4, California • Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N.Y.

HUNT-SPILLER

# GUN IRON

## FOR YOUR off STANDARD REPLACEMENT PARTS

The use of standard replacement parts is not necessarily the most economical way to rebuild old equipment. That's why Hunt-Spiller can and does supply parts which are dimensionally suited to particular job requirements.

As a case in point, many cylinder lines are now being furnished with custom fits for the older Alco and Baldwin diesel engines. By Hunt-Spiller's machining of the O.D. of the liner to oversize dimensions, reboring of the engine frame itself is all that is necessary to be assured of an accurate, leak-proof fit. Structural changes required to secure proper fits with liners of standard dimensions are eliminated. Replacement costs are held to a minimum, particularly since Hunt-Spiller parts of this type are supplied at standard prices.

In addition to the advantage of being able to secure parts machined to your specifications, you get those parts made of Gun Iron . . . the dense, close-grained iron ideally suited for resistance to frictional wear, heat, pressure, corrosion and erosion.

In standard or off-standard replacement parts, you'll always get more for your money from Hunt-Spiller.

*A NEW CATALOG*

*HAVE YOU RECEIVED your catalog of Hunt-Spiller Diesel Parts? If not, a copy is yours for the asking. Write for it today.*


HUNT-SPILLER GUN IRON • AIR FURNACE PROCESS • HSGI

**HUNT • SPILLER**

**MANUFACTURING CORPORATION**

379 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

*Canadian Representatives: Joseph Robb & Co., Ltd. 4050 Namur St., Montreal 16, P. Q.*

*Export Agents: International Rwy. Supply Co. 30 Church Street, New York 7, N. Y.*

# ready

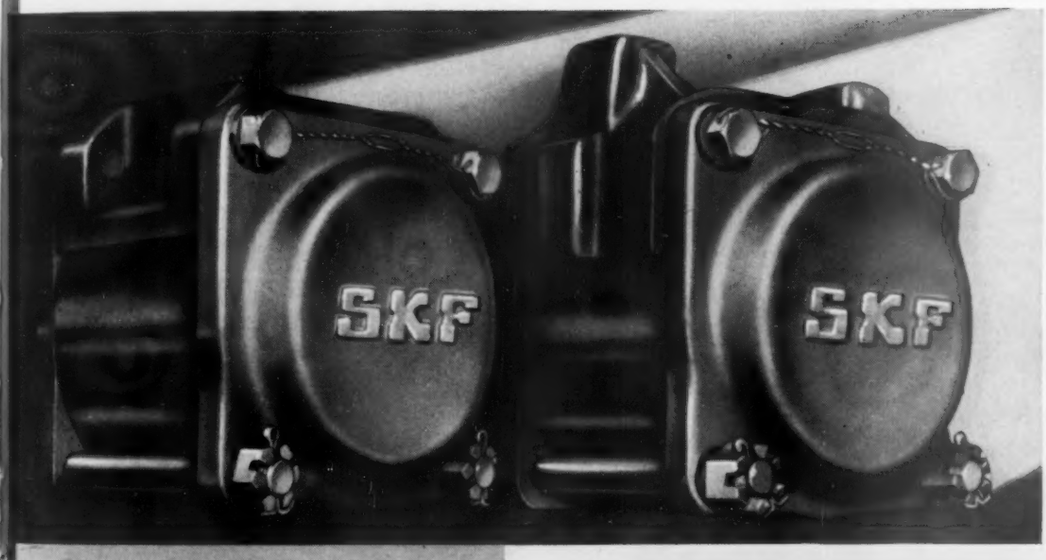
## to eliminate this costly signal

This traditional sign — the hand to the nose — means *hot box* to every railroader. Hot boxes today are the costliest problem in the movement of rail freight. But, working together with railroad operating executives, SKF Engineers have developed the SKF FREIGHTER Roller Bearing for freight cars. Service tests prove *they eliminate the hot box problem.*

**they're called FREIGHTER ROLLER BEARINGS**

***because they improve rail freight movement in these 8 important mechanical and economic ways:***

| | |
|---|---|
| 1st of EIGHT | **Maximum safety—eliminates hot box problem.** |
| 2nd of EIGHT | **Better riding qualities—less lading damage.** |
| 3rd of EIGHT | **Minimum wear of wheels and truck parts.** |
| 4th of EIGHT | **Low lubrication cost.** |
| 5th of EIGHT | **Long bearing life.** |
| 6th of EIGHT | **Easy installation. No adjustments at assembly.** |
| 7th of EIGHT | **Adaptability to proposed AAR standards.** |
| 8th of EIGHT | **Best overall economy.** |




# SKF®
## ROLLER BEARING JOURNAL BOXES

SKF FREIGHTER Roller Bearings are the result of over 40 years of patient engineering and thorough road tests under railroad operating conditions.

When you're ready to equip your freight cars with anti-friction bearings, remember one important name—SKF FREIGHTER Roller Bearings, made by the manufacturer with the world's widest experience in the application of anti-friction bearings to passenger and freight cars and motive power.

**SKF INDUSTRIES, INC.,** PHILADELPHIA 32, PA.— *manufacturers of* SKF *and* HESS-BRIGHT *bearings.*

7409

# FOR REWIRING DIESEL-ELECTRIC LOCOMOTIVES

## G. E. recommends 3 Cables

- **FOR POWER CIRCUITS**
- **FOR TRACTION-MOTOR LEADS**
- **FOR CONTROL CIRCUITS**

**For all power circuits,** except exposed traction-motor leads, on all makes and types of diesel-electric locomotives, General Electric recommends G-E Versatol* Geoprene cable, SI-58219. This cable is constructed to meet the predetermined diameters required for diesel-electric locomotive applications. It has an extra-flexible rope stranding for the conductor to help give maximum life where vibration is present—and also to make the cable easier to work into place. The insulation, a buna-S compound developed by G. E., is characterized by its resistance to aging and is particularly outstanding where heat is present. The jacket is a neoprene-based compound with a tough, smooth surface that stands up under abrasion, makes pulling into conduit easy, and has good resistance to such corrosives as fuel and lubricating oils, steam, and cleaning compounds and detergents.

**General Electric,** based on its experience as a major manufacturer of wire and cable and as a builder of electric locomotives, as well as a builder and co-builder of diesel-electric locomotives, recommends these three cables for use in rewiring diesel-electric locomotives. For more information, write to Section W62-474, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

*You can put your confidence in—*

1878 75 1953 YEARS OF ELECTRICAL PROGRESS

**GENERAL ELECTRIC**

**For all control circuits,** on all makes and types of diesel-electric locomotives, General Electric recommends G-E Geoprene locomotive control wire, SI-58222. The cable withstands vibration, is easy to weave and to pull. The conductor is extremely flexible, being made up of as many as 65 individual strands. Individual strands are tinned for better stripping and easier application of terminals. The over-all diameter is small and provides ample insulation for low-voltage circuits. It is highly resistant to fuel and lubricating oils, and most acids and alkalies.

**For all traction-motor leads,** on all makes and types of diesel-electric locomotives, General Electric recommends G-E Versatol* Geoprene cable, SI-58220. This is a heavy-duty cable with a reinforcing braid that binds the insulation to the jacket and makes the cable better able to take the continual flexing caused by the movement of the trucks. The neoprene-type jacket has the toughness necessary to stand up under the cutting action of flying dust, grit and sand, and to resist oils, water, cleaning compounds, steam, and ice.

**Registered Trade-mark General Electric Company*

# What the Institute of Thread Machiners Means to You

**The Institute of Thread Machiners was organized to improve and standardize its industry's products . . . to cooperate with the nation's railroads and with the Association of American Railroads in solving journal box lubrication problems. Much has been done and the program is a continuing one.**

**Railroads are now being supplied with a *new*, high quality Journal Box Packing. It meets or exceeds all AAR specifications. And, if used properly, it reduces hot boxes.**

**This new packing is produced by the manufacturers listed on this page. It is a *better* packing and a consistently uniform packing because the Institute of Thread Machiners has made it so. Look for the Institute's seal of approval on every bale.**

**You can be sure that you are getting only the best in Journal Box Packing when it carries this seal . . . your guarantee of consistent, high quality.**


## Institute of Thread Machiners, Inc. 141 East 44th Street, New York 17

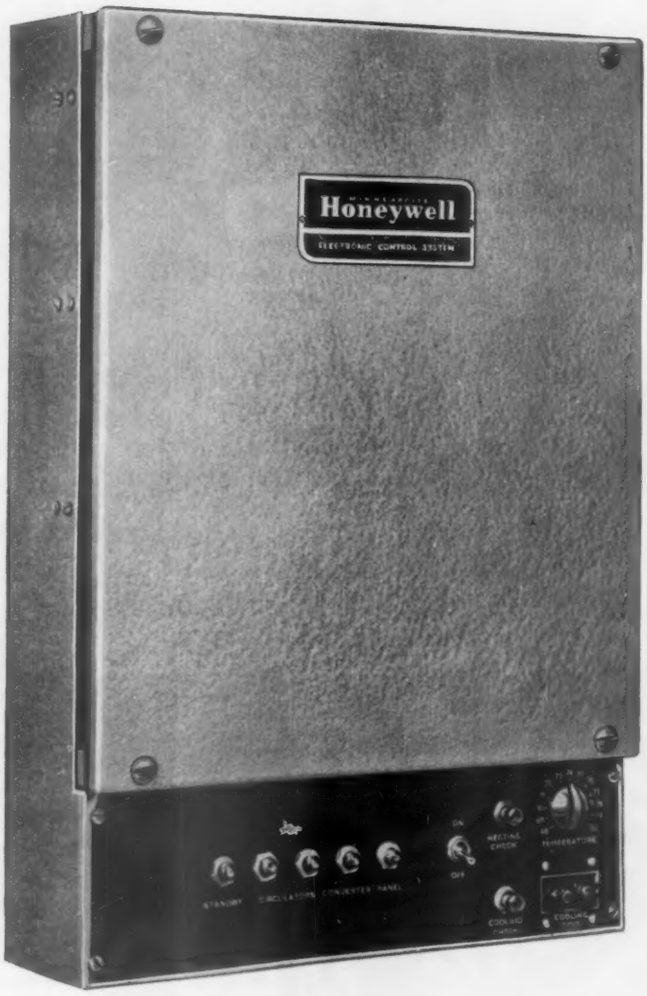
ATLAS FIBERS CO., INC., Glendale, L. I.
MEYER BURSTEIN & SONS, Neenah, Wisconsin
DALLAS WASTE MILLS, Dallas, Texas
THE J. MILTON HAGY WASTE WORKS, Philadelphia, Pa.
LAYOR MANUFACTURING CO., Jacksonville, Fla.
JOHN J. McGRATH, INC., Philadelphia, Pa.
MILLER WASTE MILLS, INC., Winona, Minn.
NATIONAL WASTE COMPANY, New York, N. Y.
O'NEILL BROTHERS, INC., Philadelphia, Pa.
THE PITTSBURGH WASTE CO., INC., Swissvale, Pa.
RIVERSIDE MILLS, Augusta, Ga.
ROYAL MANUFACTURING CO., Perth Amboy, N. J.
SOUTHLAND MANUFACTURING Co., Inc., Norfolk, Va.
TWIN CITY TEXTILE MILLS WASTE CO., St. Paul, Minn.

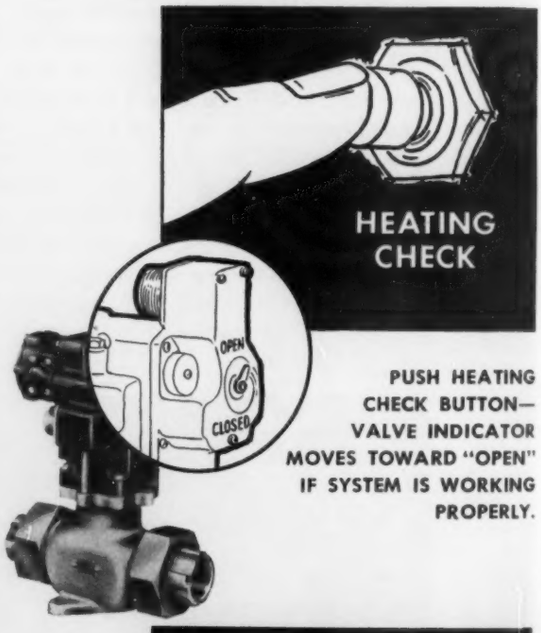
## *Here's a valuable extra,*

# push-button

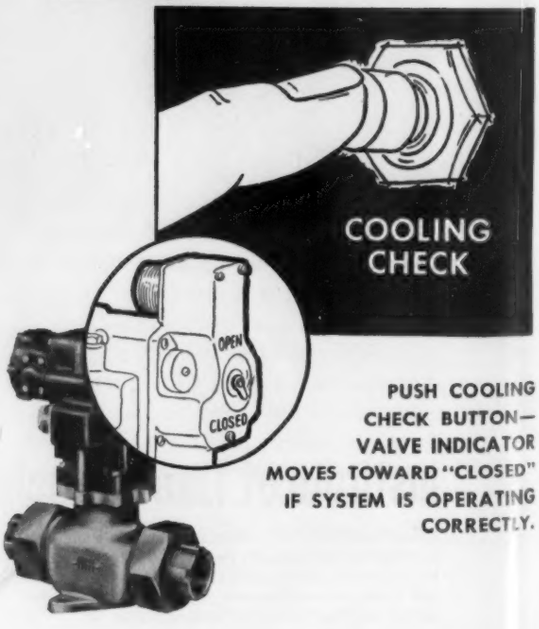
### *Push two buttons!*

### Have a complete heat-cool check in 17 seconds




PUSH HEATING CHECK BUTTON— VALVE INDICATOR MOVES TOWARD "OPEN" IF SYSTEM IS WORKING PROPERLY.




PUSH COOLING CHECK BUTTON— VALVE INDICATOR MOVES TOWARD "CLOSED" IF SYSTEM IS OPERATING CORRECTLY.

- Prevents costly schedule delays
- Eliminates wasteful and time-consuming "testing" of heating and cooling systems
- Reduces possibility of heating or cooling system failures on trip
- Reduces unfavorable passenger complaints about heating-cooling failures

# n inspection

## for Honeywell Car Heating Systems

This remarkable new development by Honeywell is the long-awaited answer to the old problem of finding a quick, accurate way to test car heating-cooling systems in the yard! When one considers that 95% of all road failures are caused by inadequate terminal inspections, the importance of this new Honeywell device is readily apparent. With Push-Button Inspection, the heating or cooling system can be *checked in a few seconds right in the terminal!*

A fast, positive check of the car heating-cooling system can mean savings of thousands of dollars in labor man hours and equipment maintenance expense to railroads. It can help prevent schedule delays caused by lengthy maintenance inspections. This system will also reduce complaints about heating-cooling failures, thus helping build passenger good will.

This new Push-Button Inspection is a feature of Honeywell's outstanding car heating control system, which can be readily installed on the existing passenger cars of your railroad.

### . . . the latest benefit to railroads of competitive buying!

Honeywell, working hand-in-hand with railroad people, developed this new product as a natural competitive function. It is tangible evidence of the benefits now accruing to the nation's railroads since Honeywell entered the railroad car heating field and started to compete for this business.

This is a good example of how Honeywell, with long experience in the design and manufacture of precision controls, can help railroads solve car heating problems.

Honeywell has helped improve car heating efficiency and economy of operation in other ways, too. For it is evident from performance records that railroads* with Honeywell-equipped cars can look forward to continuing savings in operating expenses and maintenance.

Contact one of Honeywell's 104 key city offices—find out about the fine railroad service facilities each can provide. And be sure to ask for full information about the new Push-Button Inspection on the Honeywell Car Heating Control System. If you prefer information by mail, send the coupon below.

* Today Honeywell car heating control systems are proving themselves in use on the cars of twenty different railroads across the nation.

MINNEAPOLIS **Honeywell**

H HONEYWELL Transportation Division

MINNEAPOLIS-HONEYWELL REGULATOR CO.
RA-4-112 Fourth Avenue South
Minneapolis 8, Minnesota

Gentlemen:

Please send information on the Push-Button Inspection feature of the Honeywell Car Heating Control System.

*Name*.....

*Railroad*.....

*Address*.....

*City*.....*Zone*.....*State*.....

## Current Publications

### BOOKS

*Economics of Transportation, by Russell E. Westmeyer. 741 pages. Prentice-Hall, Inc., 70 Fifth ave., New York 11. $8.65.*

Dr. Westmeyer has divided his study into seven parts. Part One covers the importance of improved transportation and the history of transportation in the early United States. Part Two covers railroad transportation. Since the railroads have a much longer history and are presently hauling more traffic than all other agencies combined, more space is devoted to them than to the other forms of transportation, but these other forms are not neglected. Much of the material in the railroad section deals with the development and present status of carrier regulation and provides the necessary background for studying the regulation of the newer agencies. Parts Three, Four, and Five deal with motor, domestic water, and air transportation, and Part Six covers other forms of domestic transportation. Part Seven takes up the matter of interagency relationships and the place of each in a sound national transportation system.

*The Railroads of America, by Merle Armitage. 319 pages, illustrations, maps. Duell, Sloan & Pearce-Little, Brown, 124 E. 30th st., New York 16. $5.*

The more than 400 photographs in this book are used to illustrate picture stories, of varying lengths, on 47 major railroads, and photographic essays on 23 others. The accompanying brief texts, for the most part, cover history, equipment and operations, but the emphasis is on the photographs of rolling stock, locomotives, communications, yards, track, etc. They are well-produced and give one the feeling of seeing railroads in action. Mr. Armitage not only authored the book, but designed it as well.

*Executive Development; A Survey of Experience in Fifty American Corporations, by John W. Riegel. 369 pages. University of Michigan Press, Ann Arbor, Mich. $6.*

This report is based upon conversations in 1950 and 1951 with executives in 50 leading companies and reflects mainly the experience of these companies. The study revealed a variety of practices and also differences in the emphasis placed on a number of objectives. Some of the companies were concentrating their efforts at junior executive levels and within a few branches; others had more comprehensive programs. Some of the companies were concerned mainly with strengthening the replacements for present executives; others were trying also to upgrade the performance of many key men on their present jobs. Industries represented in the survey are banking and insurance, chain store, chemical, construction, department store, electrical apparatus, food, glass, metal fabricator, nonferrous metal, printing, petroleum, public utilities, rubber, steel and textile. One purpose of this report is to outline the scope of a fairly comprehensive program of executive development,

to suggest a philosophy for it, and to outline means for carrying it on.

*Bituminous Coal Annual, 1952. 176 pages, illustrations, charts. Bituminous Coal Institute, Southern bldg., Washington 5, D.C. Free.*

A new feature of the annual this year is a series of stories about states which are "richly endowed with coal." Other innovations are a special 16-page pictorial supplement showing typical scenes of modern mechanized mining operations, million-dollar coal preparation plants, and coal at work in America, and a folded insert cutaway view of a typical modern underground coal mine tracing the step-by-step operations in the mining of coal and its preparation for shipment. Another section describes the manifold activities of the National Coal Association, B.C.I.'s parent organization; still another contains a comprehensive review of the bituminous coal industry in 1951-52. The statistical section includes 64 tables, and graphs and charts.

## PAMPHLETS

*Your Opportunities in Science and Engineering. 30 pages. National Association of Manufacturers, Employee Information Service, 14 W. 49th st., New York 20. Free.*

As an aid in helping to solve the problem of the shortage in scientific and engineering personnel, the N.A.M. has prepared this booklet to interest more young people in making a career in these fields. It tells the story of modern science and engineering, outlines specific jobs, makes suggestions on job selection, and tells how to train for a successful career in science or technology. The N.A.M. has also issued four other pamphlets which are available for distribution to employees. "Thanks to All 4" shows how teamwork of employees, managers, investors and customers makes our nation strong and prosperous. "I Want My Daddy to Be Careful" will leave on the minds of employees a lasting emotional impression of the real importance of safety. "12 Questions and Answers Affecting Your Job in Manufacturing" uses illustration and down-to-earth factual copy to inform employees on the big story of industry, its role in American life, and their role in it. "Meet the Boss" carries the message that the company's fate is really in the hands of customers who demand high quality and lowest possible prices.

*Western Maryland in Pictures. 24 pages, illustrations, map. Western Maryland Railway Company, Standard Oil bldg., Baltimore 2, Md.*

The Western Maryland is blessed with an unusually fine assortment of outstanding photographs of its equipment, its facilities, its operations, and the territory it serves; mile for mile, there may be no railroad in the country which can excel, and few which can equal, the WM's superb "family album." This 10-inch by 14-inch booklet reproduces—in varying sizes up to 14 by 14½ inches—55 of the WM's finest photos, by such outstanding photographers as A. Aubrey Bodine, of the Baltimore Sunpapers, and others.


# Over 50 diesel road units on the Chicago Great Western Railway use . . .

**STANDARD HD**
TRADE-MARK
**Oil**

• Serving one of the great industrial and agricultural sections of the country, the Chicago Great Western Railway has been quick to utilize the efficiency and economy of diesel locomotives in its heavy-duty operation.

Used in over 50 diesel passenger and freight road units, STANDARD HD Oil has served on this hard-working railway for over five years. It has provided clean, protective lubrication that in turn has helped keep diesel maintenance costs low.

The Chicago Great Western is one of the more than 70 railroads that now use STANDARD HD oil. This acceptance indicates the ability of this superior heavy-duty lubricant to provide efficient and economical lubrication for all types of diesel locomotives. Make that your basis for investigating STANDARD HD oil. A Standard Oil Railway Department representative will be glad to help you. For his services, write: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

**STANDARD OIL COMPANY** STANDARD *(Indiana)*

# REVENUES AND EXPENSES OF RAILWAYS

*(Dollar figures are stated in thousands; i.e., with last three digits omitted)*

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1953

| Name of Road | Average mileage operated during period | Operating Revenues: Freight | Pass. | Total (inc. misc.) 1953 | Total (inc. misc.) 1952 | Operating Expenses: Maint. Way and Structures: Total 1953 | Total 1952 | Deprec. and Retirements | Maint. Equipment: Total 1953 | Total 1952 | Deprec. and Retirements | Traffic | Transportation | Total 1953 | Total 1952 | Operating ratio 1953 | Operating ratio 1952 | Net from railway operation | Railway tax accruals | Net railway operating income 1953 | Net railway operating income 1952 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Akron, Canton & Youngstown | Feb. 171 | $496 | .... | $509 | $472 | $66 | $67 | $6 | $56 | $58 | $15 | $37 | $131 | $322 | $333 | 63.3 | 70.6 | $187 | $88 | $83 | $63 |
| | 2 mos. 171 | 986 | .... | 1,016 | 947 | 136 | 137 | 12 | 100 | 119 | 31 | 76 | 273 | 647 | 672 | 63.7 | 70.9 | 369 | 164 | 156 | 111 |
| Atchison, Topeka & Santa Fe System | Feb. 13,094 | 40,215 | $3,700 | 47,865 | 46,778 | 6,679 | 5,926 | 699 | 8,242 | 8,531 | 1,685 | 1,076 | 14,700 | 32,712 | 32,182 | 68.3 | 68.8 | 15,153 | 8,569 | 6,624 | 6,166 |
| | 2 mos. 13,094 | 80,899 | 8,481 | 97,827 | 94,685 | 13,220 | 12,259 | 1,312 | 16,888 | 17,176 | 3,362 | 2,132 | 29,993 | 66,435 | 66,413 | 67.9 | 70.1 | 31,392 | 18,057 | 13,250 | 11,602 |
| Atlanta & St. Andrews Bay | Feb. 82 | 300 | 1 | 309 | 308 | 28 | 42 | 3 | 21 | 22 | 4 | 8 | 68 | 144 | 146 | 46.6 | 47.2 | 165 | 90 | 46 | 51 |
| | 2 mos. 82 | 640 | 2 | 657 | 632 | 54 | 76 | 5 | 45 | 42 | 9 | 17 | 135 | 289 | 290 | 44.0 | 45.9 | 368 | 200 | 105 | 107 |
| Atlanta & West Point | Feb. 93 | 285 | 33 | 364 | 413 | 40 | 47 | 6 | 69 | 60 | 13 | 15 | 150 | 298 | 300 | 82.0 | 72.5 | 66 | 31 | 22 | 38 |
| | 2 mos. 93 | 562 | 84 | 742 | 817 | 95 | 91 | 11 | 139 | 120 | 25 | 32 | 307 | 620 | 597 | 83.6 | 73.1 | 122 | 60 | 35 | 68 |
| Western of Alabama | Feb. 133 | 311 | 32 | 381 | 346 | 51 | 49 | 7 | 68 | 64 | 15 | 15 | 128 | 286 | 283 | 74.9 | 81.8 | 96 | 52 | 47 | 22 |
| | 2 mos. 133 | 628 | 82 | 789 | 727 | 113 | 98 | 14 | 135 | 128 | 31 | 32 | 277 | 603 | 580 | 76.4 | 79.8 | 187 | 104 | 85 | 47 |
| Atlantic & Danville | Feb. 205 | 158 | .... | 160 | 167 | 30 | 40 | 2 | 15 | 11 | 5 | 11 | 50 | 117 | 125 | 73.1 | 74.7 | 43 | 11 | 10 | 16 |
| | 2 mos. 205 | 321 | .... | 326 | 333 | 60 | 75 | 4 | 30 | 22 | 10 | 24 | 101 | 239 | 247 | 73.4 | 74.3 | 87 | 21 | 22 | 29 |
| Atlantic Coast Line | Feb. 5,379 | 11,480 | 2,125 | 14,757 | 15,342 | 2,332 | 2,178 | 153 | 3,197 | 2,663 | 543 | 385 | 5,162 | 11,721 | 10,967 | 79.4 | 71.5 | 3,036 | 1,925 | 586 | 612 |
| | 2 mos. 5,379 | 23,195 | 4,567 | 30,147 | 31,038 | 4,791 | 4,270 | 318 | 6,565 | 5,239 | 1,084 | 787 | 10,574 | 24,019 | 21,824 | 79.7 | 70.3 | 6,128 | 3,475 | 1,733 | 2,221 |
| Charleston & Western Carolina | Feb. 343 | 560 | 1 | 577 | 573 | 123 | 138 | 4 | 109 | 107 | 43 | 15 | 164 | 423 | 439 | 73.3 | 76.6 | 154 | 70 | 82 | 70 |
| | 2 mos. 343 | 1,139 | 2 | 1,173 | 1,140 | 269 | 277 | 7 | 209 | 216 | 85 | 33 | 329 | 864 | 885 | 73.7 | 77.6 | 308 | 150 | 166 | 128 |
| Baltimore & Ohio | Feb. 6,186 | 30,807 | 1,700 | 34,743 | 36,505 | 4,381 | 5,070 | 577 | 7,768 | 8,068 | 1,009 | 897 | 13,504 | 27,960 | 29,838 | 80.5 | 81.7 | 6,783 | 2,350 | 3,286 | 3,478 |
| | 2 mos. 6,186 | 63,311 | 3,927 | 71,860 | 74,076 | 9,033 | 9,569 | 1,281 | 15,800 | 16,262 | 2,001 | 1,761 | 28,183 | 57,772 | 60,345 | 80.4 | 81.5 | 14,089 | 4,908 | 6,875 | 7,030 |
| Staten Island Rapid Transit | Feb. 29 | 234 | 53 | 291 | 296 | 60 | 48 | 15 | 28 | 37 | 2 | 2 | 146 | 267 | 257 | 91.9 | 86.8 | 23 | 37 | —38 | —13 |
| | 2 mos. 29 | 445 | 108 | 562 | 621 | 123 | 98 | 17 | 58 | 80 | 4 | 3 | 308 | 556 | 533 | 99.0 | 85.9 | 6 | 73 | —113 | —19 |
| Bangor & Aroostook | Feb. 602 | 1,453 | 36 | 1,540 | 1,567 | 325 | 235 | 16 | 237 | 237 | 82 | 21 | 349 | 995 | 972 | 64.6 | 62.0 | 545 | 270 | 252 | 235 |
| | 2 mos. 602 | 2,950 | 74 | 3,120 | 3,077 | 650 | 470 | 33 | 462 | 484 | 164 | 39 | 719 | 2,005 | 1,956 | 64.3 | 63.6 | 1,115 | 573 | 534 | 453 |
| Bessemer & Lake Erie | Feb. 213 | 1,441 | .... | 1,459 | 1,419 | 182 | 176 | 21 | 666 | 627 | 131 | 22 | 369 | 1,333 | 1,358 | 91.3 | 95.7 | 126 | 64 | 198 | 113 |
| | 2 mos. 213 | 2,942 | 1 | 2,981 | 2,787 | 341 | 339 | 43 | 1,820 | 1,269 | 261 | 44 | 751 | 3,143 | 2,693 | 105.4 | 96.6 | —162 | 127 | —35 | 231 |
| Boston & Maine | Feb. 1,679 | 5,332 | 968 | 7,092 | 7,084 | 1,225 | 1,357 | 177 | 1,153 | 1,144 | 180 | 111 | 3,136 | 5,944 | 6,110 | 83.8 | 86.3 | 1,148 | 495 | 275 | 148 |
| | 2 mos. 1,679 | 11,000 | 1,973 | 14,628 | 14,518 | 2,623 | 2,746 | 361 | 2,278 | 2,236 | 361 | 221 | 6,442 | 12,239 | 12,443 | 83.7 | 85.7 | 2,389 | 1,050 | 562 | 340 |
| Cambria & Indiana | Feb. 35 | 150 | .... | 150 | 165 | 20 | 16 | 1 | 98 | 93 | 22 | .... | 21 | 145 | 142 | 96.1 | 86.2 | 6 | 57 | 70 | 60 |
| | 2 mos. 35 | 305 | .... | 305 | 332 | 35 | 32 | 2 | 193 | 172 | 45 | .... | 42 | 284 | 272 | 93.0 | 82.0 | 21 | 119 | 145 | 118 |
| Canadian Pacific Lines in Maine | Feb. 234 | 777 | 50 | 851 | 844 | 104 | 134 | 5 | 186 | 129 | 17 | 8 | 317 | 629 | 577 | 74.0 | 68.3 | 221 | 28 | 141 | 143 |
| | 2 mos. 234 | 1,536 | 117 | 1,709 | 1,710 | 181 | 221 | 10 | 370 | 275 | 32 | 16 | 630 | 1,227 | 1,145 | 71.8 | 67.0 | 482 | 60 | 300 | 303 |
| Canadian Pacific Lines in Vermont | Feb. 90 | 182 | 17 | 217 | 229 | 37 | 85 | 4 | 39 | 37 | .... | 7 | 111 | 203 | 250 | 93.5 | 109.3 | 14 | 11 | —48 | —89 |
| | 2 mos. 90 | 386 | 27 | 455 | 451 | 86 | 137 | 8 | 75 | 72 | .... | 13 | 227 | 418 | 482 | 91.8 | 106.8 | 37 | 23 | —91 | —167 |
| Central of Georgia | Feb. 1,786 | 3,056 | 211 | 3,573 | 3,622 | 570 | 569 | 65 | 553 | 594 | 115 | 128 | 1,355 | 2,818 | 2,990 | 78.9 | 82.5 | 755 | 348 | 292 | 219 |
| | 2 mos. 1,786 | 6,257 | 435 | 7,296 | 7,364 | 1,147 | 1,142 | 111 | 1,150 | 1,173 | 228 | 260 | 2,743 | 5,729 | 6,048 | 78.5 | 82.1 | 1,567 | 731 | 627 | 451 |
| Central of New Jersey | Feb. 617 | 3,951 | 429 | 4,713 | 5,103 | 617 | 626 | 86 | 1,043 | 975 | 168 | 75 | 1,977 | 3,918 | 4,121 | 83.1 | 80.8 | 795 | 455 | 186 | 384 |
| | 2 mos. 617 | 8,448 | 882 | 9,983 | 10,524 | 1,225 | 1,276 | 173 | 2,173 | 2,021 | 327 | 154 | 4,255 | 8,229 | 8,511 | 82.4 | 80.9 | 1,755 | 919 | 507 | 761 |
| Central Vermont | Feb. 422 | 777 | 66 | 909 | 880 | 169 | 176 | 16 | 150 | 175 | 12 | 16 | 340 | 714 | 828 | 78.6 | 94.1 | 195 | 41 | 72 | —70 |
| | 2 mos. 422 | 1,550 | 134 | 1,812 | 1,856 | 299 | 304 | 32 | 308 | 342 | 25 | 31 | 742 | 1,461 | 1,634 | 80.6 | 88.0 | 351 | 81 | 79 | 11 |
| Chesapeake & Ohio | Feb. 5,116 | 22,550 | 536 | 24,147 | 29,619 | 3,524 | 3,930 | 361 | 5,206 | 6,127 | 1,460 | 723 | 8,025 | 18,638 | 21,669 | 77.2 | 73.2 | 5,508 | 2,348 | 3,527 | 4,346 |
| | 2 mos. 5,116 | 49,188 | 1,256 | 52,691 | 60,843 | 7,421 | 8,158 | 734 | 10,698 | 12,668 | 2,910 | 1,364 | 16,950 | 38,853 | 44,497 | 73.7 | 73.1 | 13,838 | 6,423 | 8,318 | 8,824 |
| Chicago & Eastern Illinois | Feb. 868 | 2,321 | 236 | 2,851 | 2,922 | 353 | 317 | 31 | 493 | 406 | 123 | 136 | 1,051 | 2,213 | 2,072 | 77.6 | 70.9 | 638 | 195 | 314 | 393 |
| | 2 mos. 868 | 4,663 | 537 | 5,813 | 5,899 | 715 | 653 | 57 | 992 | 832 | 246 | 263 | 2,155 | 4,485 | 4,232 | 77.1 | 71.7 | 1,328 | 421 | 654 | 769 |
| Chicago & Illinois Midland | Feb. 130 | 563 | .... | 577 | 613 | 81 | 82 | 4 | 147 | 193 | 24 | 29 | 181 | 482 | 545 | 83.5 | 88.8 | 95 | 46 | 44 | 6 |
| | 2 mos. 130 | 1,134 | .... | 1,165 | 1,260 | 167 | 163 | 11 | 296 | 386 | 47 | 68 | 391 | 1,013 | 1,120 | 87.0 | 88.9 | 152 | 84 | 40 | 17 |
| Chicago & North Western | Feb. 7,874 | 11,355 | 1,681 | 14,639 | 15,664 | 2,189 | 2,252 | 329 | 2,966 | 3,166 | 776 | 329 | 7,017 | 13,281 | 14,290 | 90.7 | 91.3 | 1,358 | 1,033 | —110 | —32 |
| | 2 mos. 7,874 | 23,713 | 3,547 | 30,698 | 32,074 | 4,290 | 4,613 | 621 | 6,189 | 6,356 | 1,554 | 677 | 14,580 | 27,348 | 29,306 | 89.1 | 91.4 | 3,350 | 2,088 | 429 | —112 |
| Chicago, Burlington & Quincy | Feb. 8,867 | 17,291 | 1,392 | 20,824 | 20,601 | 2,455 | 1,965 | 383 | 3,096 | 3,361 | 689 | 543 | 7,685 | 14,556 | 13,992 | 69.9 | 67.9 | 6,267 | 3,395 | 2,513 | 2,668 |
| | 2 mos. 8,867 | 35,542 | 3,031 | 43,079 | 42,195 | 5,183 | 4,521 | 741 | 6,392 | 7,187 | 1,379 | 1,044 | 15,689 | 29,947 | 29,736 | 69.5 | 70.5 | 13,132 | 7,057 | 5,313 | 4,777 |
| Chicago Great Western | Feb. 1,468 | 368 | .... | 406 | 2,900 | 106 | 451 | 40 | 184 | 440 | 119 | 94 | 176 | 590 | 2,002 | 145.4 | 69.1 | —184 | 81 | —130 | 308 |
| | 2 mos. 1,468 | 2,474 | 7 | 2,685 | 5,831 | 405 | 901 | 87 | 462 | 841 | 239 | 206 | 953 | 2,133 | 3,999 | 79.4 | 68.6 | 552 | 365 | 174 | 636 |
| Chicago, Indianapolis & Louisville | Feb. 541 | 1,553 | 54 | 1,722 | 1,792 | 342 | 318 | 18 | 233 | 247 | 69 | 85 | 576 | 1,325 | 1,340 | 76.9 | 74.8 | 397 | 145 | 165 | 161 |
| | 2 mos. 541 | 3,077 | 130 | 3,449 | 3,462 | 666 | 635 | 43 | 447 | 493 | 133 | 170 | 1,181 | 2,703 | 2,714 | 78.4 | 78.4 | 746 | 274 | 315 | 247 |
| Chicago, Milw., St. Paul & Pacific | Feb. 10,670 | 17,322 | 1,159 | 20,357 | 21,185 | 2,487 | 2,672 | 391 | 4,164 | 4,556 | 851 | 519 | 8,047 | 16,139 | 17,673 | 79.3 | 83.4 | 4,218 | 2,016 | 1,525 | 1,195 |
| | 2 mos. 10,670 | 34,413 | 2,630 | 41,004 | 42,710 | 4,976 | 5,332 | 743 | 8,586 | 9,425 | 1,715 | 942 | 16,634 | 33,103 | 36,444 | 80.7 | 85.3 | 7,901 | 3,814 | 2,750 | 1,947 |
| Chicago, Rock Island & Pacific | Feb. 7,916 | 14,345 | 1,354 | 17,004 | 17,349 | 1,740 | 1,841 | 247 | 2,554 | 2,954 | 551 | 483 | 5,924 | 11,527 | 12,488 | 67.8 | 72.0 | 5,477 | 2,423 | 2,344 | 1,958 |
| | 2 mos. 7,916 | 28,422 | 3,157 | 34,422 | 34,372 | 3,483 | 3,774 | 494 | 5,155 | 5,759 | 1,082 | 974 | 11,947 | 23,227 | 25,310 | 67.5 | 72.6 | 11,195 | 5,007 | 4,845 | 3,875 |
| Chicago, St. Paul, Minn. & Omaha | Feb. 1,617 | 2,159 | 158 | 2,536 | 2,777 | 343 | 349 | 45 | 403 | 478 | 90 | 64 | 1,399 | 2,337 | 2,484 | 92.1 | 89.4 | 200 | 177 | —217 | —182 |
| | 2 mos. 1,617 | 4,546 | 355 | 5,379 | 5,673 | 698 | 726 | 90 | 802 | 899 | 180 | 132 | 2,841 | 4,723 | 5,037 | 87.8 | 88.8 | 656 | 357 | —156 | —229 |
| Clinchfield | Feb. 317 | 1,997 | 1 | 2,004 | 2,091 | 323 | 257 | 20 | 340 | 324 | 90 | 45 | 384 | 1,134 | 1,117 | 56.6 | 53.4 | 870 | 219 | 730 | 884 |
| | 2 mos. 317 | 4,175 | 2 | 4,196 | 4,229 | 669 | 545 | 45 | 704 | 677 | 175 | 91 | 796 | 2,341 | 2,340 | 55.8 | 55.3 | 1,855 | 439 | 1,622 | 1,743 |


Inspected after 14 months of service, CARCLAD finish on cars used in bulk cement hauling showed no signs of weathering or rust. Film remained unbroken despite hammer blows.


This tank car hauling phosphorus is another example of manufacturers and railroads turning to CARCLAD for protection under severe corrosive conditions of service.

# STOP PAINT-EATING by corrosive cargoes

## CARCLAD* protects for years instead of months!

Now you can keep equipment used for corrosive cargoes in service longer between repaints. CARCLAD ends the need for costly refinishing schedules of covered hopper cars, tank cars and similar equipment. It provides new, long-life resistance against acids, alkalies, sulphur, phosphate, alcohols and other corrosive materials. Even "splash" from aromatic hydrocarbons, ketones and esters will cause no permanent damage to the finish.

CARCLAD is not just another "acid-resisting" paint—it's a totally different system. Not only does it protect against corrosive elements—it gives longer lasting protection and good appearance. It has the weather durability of finest enamels, and resists peeling, chipping or "banging" off even when pounded with sledge hammer blows. It withstands repeated scrubbing and washing with strong cleaning compounds and solutions. Records of cars in service five years and more, without need of refinishing, are proof of its performance.

Actual results of tests are available to interested railway supervisory or executive personnel. Ask for copy of 8-page CARCLAD brochure B-759, which includes application recommendations—write The Sherwin-Williams Co., Transportation Division, Cleveland 1, Ohio. *Trade Mark

SHERWIN-WILLIAMS

RAILWAY FINISHES

# REVENUES AND EXPENSES OF RAILWAYS

*(Dollar figures are stated in thousands; i.e., with last three digits omitted)*

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1953

| Name of Road | | Average mileage operated during period | Operating Revenues | | | | Operating Expenses | | | | | | | | | | | | Net from railway operation | Railway tax accruals | Net railway operating income | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Maint. Way and Structures | | | Maint. Equipment | | | | | | | | | | | | |
| | | | Freight | Pass. | Total (inc. misc.) 1953 | Total (inc. misc.) 1952 | Total 1953 | Total 1952 | Deprec. and Retirements | Total 1953 | Total 1952 | Deprec. and Retirements | Traffic | Transportation | Total 1953 | Total 1952 | Operating ratio 1953 | Operating ratio 1952 | | | | |
| Colorado & Southern | Feb. | 734 | 1,003 | 65 | 1,180 | 1,253 | 115 | 118 | 16 | 177 | 231 | 31 | 30 | 455 | 835 | 875 | 70.7 | 69.9 | 346 | 191 | 142 | 143 |
| | 2 mos. | 734 | 2,050 | 148 | 2,443 | 2,491 | 239 | 242 | 49 | 358 | 434 | 62 | 61 | 898 | 1,670 | 1,784 | 68.4 | 71.6 | 773 | 414 | 323 | 253 |
| Ft. Worth & Denver | Feb. | 1,038 | 1,722 | 122 | 1,995 | 2,115 | 256 | 263 | 49 | 218 | 237 | 30 | 56 | 688 | 1,314 | 1,360 | 65.8 | 64.3 | 681 | 271 | 304 | 340 |
| | 2 mos. | 1,038 | 3,491 | 254 | 4,068 | 4,224 | 538 | 529 | 81 | 566 | 480 | 62 | 113 | 1,400 | 2,806 | 2,819 | 69.0 | 66.7 | 1,261 | 503 | 547 | 636 |
| Colorado & Wyoming | Feb. | 40 | 174 | .... | 309 | 293 | 18 | 38 | 2 | 30 | 29 | 11 | 1 | 102 | 162 | 200 | 52.2 | 68.1 | 148 | 88 | 58 | 33 |
| | 2 mos. | 40 | 361 | .... | 614 | 568 | 33 | 64 | 4 | 65 | 67 | 22 | 3 | 216 | 339 | 393 | 55.1 | 69.0 | 276 | 163 | 108 | 59 |
| Columbus & Greenville | Feb. | 168 | 169 | .... | 174 | 158 | 30 | 30 | 4 | 26 | 34 | 6 | 4 | 46 | 124 | 137 | 71.1 | 87.0 | 50 | 37 | 17 | 6 |
| | 2 mos. | 168 | 337 | .... | 350 | 330 | 61 | 72 | 8 | 49 | 64 | 12 | 8 | 94 | 248 | 281 | 71.0 | 85.2 | 101 | 68 | 45 | 19 |
| Delaware & Hudson | Feb. | 793 | 4,047 | 151 | 4,333 | 4,612 | 643 | 539 | 82 | 783 | 1,045 | 137 | 81 | 1,515 | 3,224 | 3,755 | 74.4 | 81.4 | 1,109 | 416 | 752 | 471 |
| | 2 mos. | 793 | 8,102 | 339 | 8,724 | 9,753 | 1,282 | 1,116 | 136 | 1,619 | 2,135 | 299 | 160 | 3,137 | 6,607 | 7,677 | 75.7 | 78.7 | 2,118 | 814 | 1,459 | 1,030 |
| Delaware, Lackawanna & Western | Feb. | 962 | 5,363 | 751 | 6,795 | 7,498 | 761 | 744 | 133 | 1,162 | 1,424 | 301 | 165 | 2,952 | 5,301 | 5,913 | 78.0 | 78.9 | 1,494 | 724 | 741 | 772 |
| | 2 mos. | 962 | 11,208 | 1,609 | 14,239 | 15,231 | 1,563 | 1,484 | 272 | 2,445 | 2,860 | 606 | 331 | 6,220 | 11,091 | 12,042 | 77.9 | 79.1 | 3,148 | 1,573 | 1,545 | 1,564 |
| Denver & Rio Grande Western | Feb. | 2,333 | 6,058 | 263 | 6,526 | 6,434 | 553 | 563 | 114 | 1,064 | 1,156 | 250 | 173 | 1,878 | 3,943 | 4,229 | 60.4 | 65.7 | 2,584 | 1,328 | 1,140 | 995 |
| | 2 mos. | 2,333 | 12,339 | 550 | 13,312 | 12,438 | 1,071 | 1,377 | 228 | 2,157 | 2,352 | 492 | 352 | 3,952 | 8,094 | 8,928 | 60.8 | 71.8 | 5,217 | 2,672 | 2,292 | 1,532 |
| Detroit & Mackinac | Feb. | 232 | 162 | 2 | 172 | 132 | 42 | 43 | 3 | 22 | 21 | 9 | 5 | 26 | 106 | 113 | 61.8 | 85.6 | 66 | 31 | 39 | 11 |
| | 2 mos. | 232 | 307 | 2 | 323 | 273 | 83 | 86 | 6 | 43 | 38 | 19 | 9 | 53 | 209 | 226 | 64.9 | 82.6 | 113 | 63 | 61 | 26 |
| Detroit & Toledo Shore Line | Feb. | 50 | 743 | .... | 779 | 685 | 78 | 75 | 3 | 60 | 61 | 17 | 15 | 193 | 360 | 363 | 46.1 | 53.0 | 420 | 162 | 140 | 104 |
| | 2 mos. | 50 | 1,497 | .... | 1,574 | 1,391 | 161 | 151 | 6 | 125 | 121 | 34 | 32 | 397 | 743 | 737 | 47.2 | 53.0 | 831 | 322 | 272 | 208 |
| Detroit, Toledo & Ironton | Feb. | 464 | 1,975 | .... | 2,069 | 1,698 | 211 | 173 | 22 | 230 | 353 | 74 | 28 | 992 | 1,528 | 1,019 | 73.8 | 60.0 | 541 | 226 | 208 | 296 |
| | 2 mos. | 464 | 3,785 | 1 | 3,995 | 3,298 | 431 | 356 | 42 | 464 | 917 | 145 | 56 | 1,758 | 2,834 | 2,281 | 70.9 | 69.2 | 1,161 | 500 | 451 | 420 |
| Duluth, Missabe & Iron Range | Feb. | 567 | 502 | 1 | 552 | 519 | 516 | 475 | 88 | 742 | 700 | 96 | 11 | 605 | 1,978 | 1,968 | 358.1 | 379.1 | —1,426 | 104 | —1,573 | —1,493 |
| | 2 mos. | 567 | 852 | 2 | 971 | 905 | 964 | 1,345 | 145 | 1,513 | 1,382 | 193 | 20 | 1,263 | 3,985 | 4,342 | 410.3 | 479.8 | —3,014 | 212 | —3,266 | —3,594 |
| Duluth, South Shore & Atlantic | Feb. | 553 | 588 | 6 | 621 | 643 | 184 | 114 | 10 | 159 | 140 | 21 | 22 | 231 | 616 | 529 | 99.1 | 82.2 | 5 | 28 | —61 | 33 |
| | 2 mos. | 546 | 1,197 | 14 | 1,272 | 1,217 | 271 | 223 | 20 | 301 | 291 | 42 | 46 | 436 | 1,094 | 1,071 | 86.0 | 88.0 | 178 | 57 | 60 | 36 |
| Duluth, Winnipeg & Pacific | Feb. | 175 | 440 | 1 | 446 | 691 | 72 | 73 | 4 | 69 | 91 | 2 | 6 | 195 | 348 | 434 | 77.9 | 62.8 | 98 | 35 | 3 | 140 |
| | 2 mos. | 175 | 814 | 2 | 829 | 1,333 | 129 | 125 | 8 | 141 | 169 | 4 | 11 | 402 | 696 | 825 | 84.0 | 61.9 | 132 | 66 | —69 | 253 |
| Elgin, Joliet & Eastern | Feb. | 236 | 3,543 | .... | 4,378 | 4,290 | 247 | 300 | 28 | 944 | 684 | 117 | 33 | 1,544 | 2,923 | 2,880 | 66.8 | 67.1 | 1,456 | 738 | 355 | 210 |
| | 2 mos. | 236 | 7,571 | .... | 9,237 | 8,855 | 529 | 693 | 53 | 1,784 | 1,463 | 227 | 70 | 3,267 | 5,964 | 6,084 | 64.6 | 68.7 | 3,272 | 1,666 | 791 | 366 |
| Erie | Feb. | 2,237 | 12,148 | 542 | 13,660 | 14,477 | 1,589 | 1,537 | 233 | 1,996 | 2,237 | 493 | 348 | 5,534 | 10,123 | 10,729 | 74.1 | 74.1 | 3,536 | 1,467 | 1,478 | 1,638 |
| | 2 mos. | 2,237 | 25,198 | 1,206 | 28,446 | 29,419 | 3,239 | 3,107 | 470 | 4,182 | 4,384 | 982 | 708 | 11,435 | 20,886 | 21,641 | 73.4 | 73.6 | 7,560 | 3,270 | 3,224 | 3,339 |
| Florida East Coast | Feb. | 571 | 2,244 | 969 | 3,534 | 3,944 | 359 | 348 | 44 | 539 | 498 | 77 | 71 | 1,133 | 2,315 | 2,380 | 65.5 | 60.3 | 1,219 | 425 | 586 | 753 |
| | 2 mos. | 571 | 4,533 | 1,944 | 7,094 | 7,603 | 741 | 713 | 86 | 1,078 | 1,043 | 155 | 148 | 2,348 | 4,737 | 4,864 | 66.8 | 64.0 | 2,357 | 829 | 1,156 | 1,347 |
| Georgia Railroad | Feb. | 321 | 660 | 17 | 744 | 800 | 118 | 110 | 9 | 133 | 123 | 30 | 32 | 309 | 628 | 632 | 84.5 | 79.0 | 116 | 37 | 105 | 151 |
| | 2 mos. | 321 | 1,371 | 41 | 1,543 | 1,612 | 244 | 215 | 17 | 268 | 247 | 60 | 69 | 642 | 1,293 | 1,261 | 83.8 | 78.3 | 250 | 73 | 211 | 308 |
| Georgia & Florida | Feb. | 360 | 302 | .... | 305 | 271 | 89 | 78 | 4 | 40 | 32 | 6 | 18 | 95 | 258 | 221 | 84.6 | 81.7 | 47 | 19 | —1 | 10 |
| | 2 mos. | 360 | 628 | .... | 636 | 538 | 186 | 154 | 7 | 80 | 65 | 11 | 38 | 190 | 525 | 447 | 82.5 | 83.0 | 111 | 37 | 17 | 15 |
| Grand Trunk Western | Feb. | 952 | 4,445 | 202 | 5,039 | 4,711 | 616 | 618 | 52 | 861 | 814 | 90 | 78 | 2,070 | 3,785 | 3,768 | 75.1 | 80.0 | 1,254 | 292 | 668 | 446 |
| | 2 mos. | 952 | 8,648 | 431 | 9,858 | 9,425 | 1,254 | 1,269 | 101 | 1,722 | 1,731 | 179 | 151 | 4,354 | 7,820 | 7,814 | 79.3 | 82.9 | 2,038 | 582 | 907 | 509 |
| Canadian Natl. Lines in New Engl. | Feb. | 172 | 207 | 4 | 291 | 233 | 60 | 75 | 9 | 59 | 50 | .... | 3 | 127 | 272 | 297 | 93.9 | 127.3 | 19 | 24 | —62 | —129 |
| | 2 mos. | 172 | 437 | 8 | 574 | 509 | 123 | 134 | 19 | 110 | 131 | .... | 6 | 273 | 556 | 612 | 96.9 | 120.1 | 18 | 48 | —134 | —226 |
| Great Northern | Feb. | 8,303 | 14,337 | 906 | 16,302 | 16,676 | 3,021 | 2,909 | 285 | 3,522 | 3,779 | 651 | 381 | 6,127 | 13,816 | 14,712 | 84.8 | 88.2 | 2,486 | 1,508 | 751 | 286 |
| | 2 mos. | 8,303 | 28,614 | 1,929 | 32,818 | 32,573 | 6,229 | 6,097 | 590 | 7,378 | 7,577 | 1,350 | 794 | 12,840 | 28,824 | 30,035 | 87.8 | 92.2 | 3,994 | 3,076 | 333 | —886 |
| Green Bay & Western | Feb. | 224 | 349 | .... | 355 | 308 | 62 | 58 | 4 | 34 | 34 | 8 | 21 | 85 | 217 | 210 | 61.0 | 68.3 | 139 | 68 | 52 | 25 |
| | 2 mos. | 224 | 674 | .... | 688 | 630 | 119 | 121 | 8 | 69 | 71 | 16 | 43 | 173 | 434 | 439 | 63.0 | 69.7 | 254 | 126 | 91 | 64 |
| Gulf, Mobile & Ohio | Feb. | 2,766 | 6,486 | 335 | 7,321 | 7,275 | 1,017 | 1,055 | 54 | 1,264 | 1,286 | 258 | 244 | 2,121 | 4,976 | 5,000 | 68.0 | 68.7 | 2,346 | 1,096 | 917 | 850 |
| | 2 mos. | 2,766 | 13,357 | 784 | 15,205 | 14,949 | 2,120 | 2,314 | 119 | 2,698 | 2,609 | 510 | 512 | 4,453 | 10,486 | 10,515 | 69.0 | 70.3 | 4,719 | 2,176 | 1,827 | 1,657 |
| Illinois Central | Feb. | 6,539 | 19,515 | 2,001 | 23,877 | 24,573 | 3,520 | 3,712 | 417 | 4,042 | 4,189 | 743 | 489 | 8,417 | 17,473 | 18,586 | 73.2 | 75.6 | 6,404 | 3,446 | 2,316 | 2,217 |
| | 2 mos. | 6,539 | 39,618 | 3,931 | 48,699 | 50,231 | 7,198 | 7,607 | 774 | 8,494 | 8,717 | 1,493 | 1,014 | 17,526 | 36,286 | 38,521 | 74.5 | 76.7 | 12,412 | 6,818 | 4,522 | 4,184 |
| Illinois Terminal | Feb. | 383 | 782 | 69 | 932 | 950 | 141 | 145 | 29 | 160 | 146 | 39 | 39 | 349 | 739 | 767 | 79.3 | 80.8 | 193 | 100 | 87 | 65 |
| | 2 mos. | 415 | 1,524 | 145 | 1,841 | 1,872 | 295 | 292 | 54 | 332 | 309 | 78 | 79 | 748 | 1,562 | 1,596 | 84.9 | 85.3 | 279 | 145 | 115 | 87 |
| Kansas City Southern | Feb. | 891 | 3,714 | 107 | 4,183 | 3,952 | 460 | 391 | 35 | 461 | 472 | 92 | 90 | 1,106 | 2,243 | 2,173 | 53.6 | 55.0 | 1,940 | 898 | 778 | 657 |
| | 2 mos. | 891 | 7,571 | 263 | 8,575 | 7,950 | 917 | 752 | 73 | 952 | 890 | 182 | 180 | 2,319 | 4,622 | 4,364 | 53.9 | 54.9 | 3,954 | 1,892 | 1,510 | 1,356 |
| Kansas, Oklahoma & Gulf | Feb. | 327 | 579 | .... | 583 | 598 | 62 | 62 | 5 | 33 | 31 | 11 | 27 | 117 | 263 | 275 | 45.0 | 45.9 | 321 | 154 | 134 | 123 |
| | 2 mos. | 327 | 1,156 | 1 | 1,167 | 1,239 | 133 | 120 | 11 | 59 | 86 | 21 | 54 | 249 | 542 | 572 | 46.5 | 46.2 | 625 | 298 | 256 | 250 |
| Lake Superior & Ishpeming | Feb. | 156 | 52 | .... | 56 | 66 | 47 | 36 | 12 | 59 | 61 | 12 | 2 | 45 | 165 | 156 | 292.5 | 236.7 | —109 | 29 | —120 | —106 |
| | 2 mos. | 156 | 107 | .... | 117 | 125 | 92 | 81 | 24 | 122 | 128 | 24 | 4 | 89 | 333 | 328 | 284.9 | 261.2 | —216 | 59 | —244 | —236 |
| Lehigh & Hudson River | Feb. | 96 | 256 | .... | 256 | 264 | 35 | 35 | 2 | 29 | 29 | 8 | 15 | 81 | 173 | 175 | 67.4 | 66.3 | 84 | 32 | 29 | 44 |
| | 2 mos. | 96 | 525 | .... | 526 | 535 | 76 | 79 | 4 | 58 | 61 | 17 | 29 | 167 | 353 | 361 | 67.1 | 67.6 | 173 | 66 | 59 | 74 |
| Lehigh & New England | Feb. | 180 | 591 | .... | 598 | 534 | 86 | 68 | 6 | 132 | 129 | 38 | 12 | 177 | 446 | 411 | 74.5 | 76.9 | 152 | 110 | 113 | 106 |
| | 2 mos. | 180 | 1,173 | .... | 1,184 | 1,152 | 195 | 146 | 12 | 272 | 253 | 76 | 25 | 367 | 953 | 859 | 80.5 | 74.6 | 231 | 164 | 187 | 199 |
| Lehigh Valley | Feb. | 1,214 | 5,072 | 294 | 5,661 | 6,561 | 715 | 725 | 95 | 1,012 | 1,035 | 208 | 136 | 2,218 | 4,319 | 4,598 | 76.3 | 70.1 | 1,342 | 470 | 713 | 976 |
| | 2 mos. | 1,214 | 10,568 | 638 | 11,807 | 13,408 | 1,454 | 1,527 | 188 | 2,055 | 2,110 | 416 | 281 | 4,665 | 8,949 | 9,479 | 75.8 | 70.7 | 2,859 | 1,085 | 1,519 | 2,013 |
| Long Island | Feb. | 365 | 1,158 | 2,723 | 4,103 | 3,860 | 597 | 618 | 86 | 808 | 720 | 122 | 12 | 2,145 | 3,726 | 3,654 | 90.8 | 94.7 | 377 | 496 | —358 | —501 |
| | 2 mos. | 365 | 2,222 | 5,714 | 8,393 | 8,046 | 1,218 | 1,244 | 173 | 1,716 | 1,565 | 243 | 25 | 4,465 | 7,785 | 8,815 | 92.8 | 109.5 | 608 | 995 | —918 | —2,221 |

# ROUGH GOING ON DINING CAR SURFACES??

## USE MAINTENANCE SAVING

# RIGID-*tex* METALS

**for KICK PLATES, WAINSCOTING, HEATER PIPECOVERS, GALLEY EQUIPMENT, DOORS — impatient shoes scuffing the beauty off dining car wainscoting, irate cooks marring up expensive galley gear, Junior gouging his initials into passageway panels while Pop bangs his luggage . . . all these railroad hazards can help put tired passenger cars into the repair shop for days lost in costly maintenance time. design-strengthened, mar-resistant Rigid-tex Metals can put trains back on the right track towards more profits and lower maintenance costs. the clear-through pattern design conceals all scratches, scuffs, dents and even smudgy fingerprints. and the wide variety of attractive patterns can add unusual distinction and lasting beauty to modern passenger train interiors. as much as 108% greater rigidity adds more strength to food equipment, partitions and wainscoting without an increase in weight. investigate the ways you can cut costs. send for your Imagineering Folder with the complete Rigid-tex Metal story . . . on company letterheads, please.**

Pattern 5-WL

RIGID-*tex* METALS

**RIGIDIZED METALS CORPORATION**

**7294 Ohio Street, Buffalo 3, New York**

U.S. & Foreign Patents

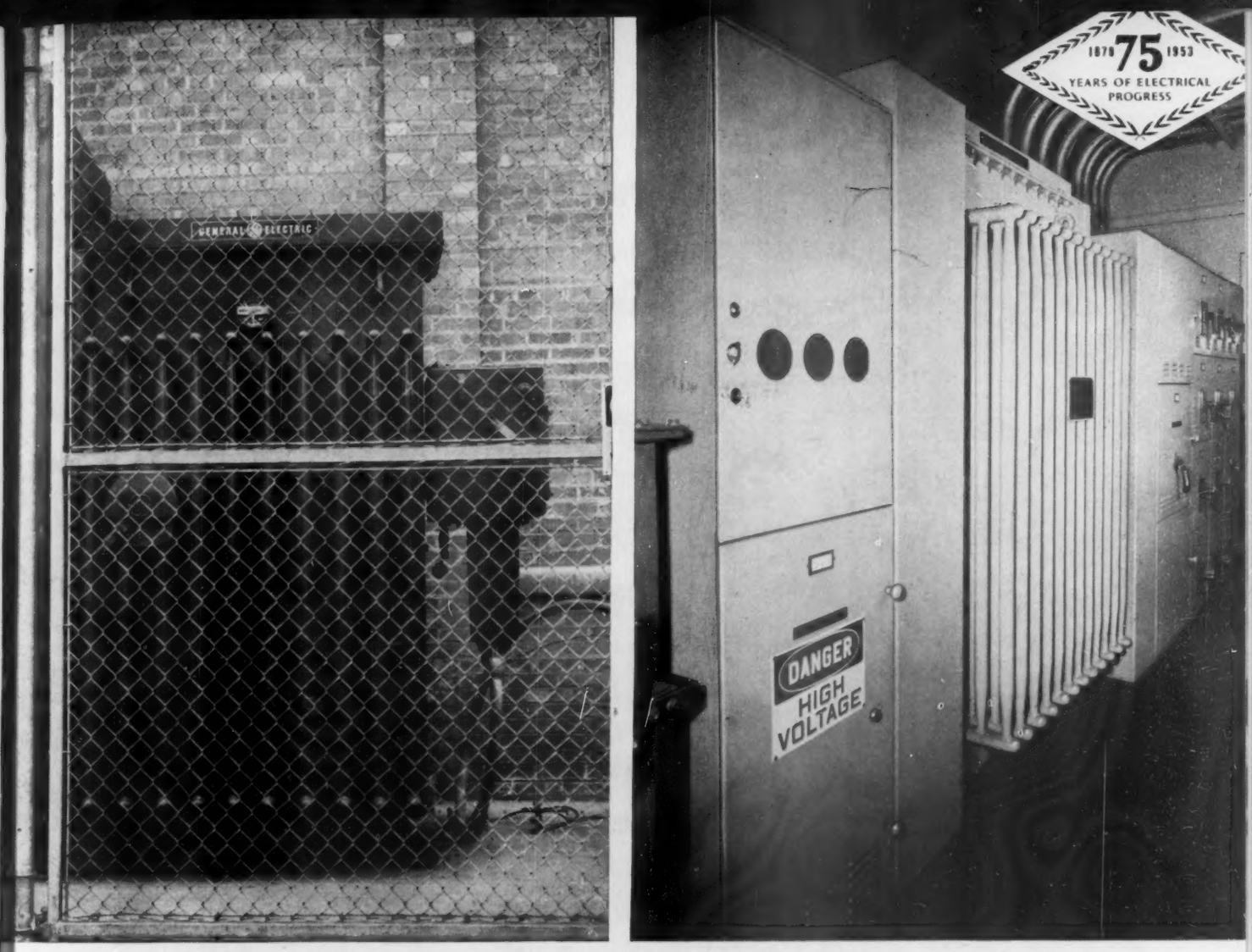
50 Warehouses and Sales Representatives in all Principal Cities Throughout the U.S. and Canada

# REVENUES AND EXPENSES OF RAILWAYS

*(Dollar figures are stated in thousands; i.e., with last three digits omitted)*

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1953

| Name of Road | | Average mileage operated during period | Operating Revenues | | | | Operating Expenses | | | | | | | | | | | | Net from railway operation | Railway tax accruals | Net Railway operating income | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (Total (inc. misc.) | | Maint. Way and Structures | | | Maint. Equipment | | | | | | | Operating ratio | | | | | |
| | | | Freight | Pass. | 1953 | 1952 | Total 1953 | Total 1952 | Deprec. and Retirements | Total 1953 | Total 1952 | Deprec. and Retirements | Traffic | Transportation | Total 1953 | Total 1952 | 1953 | 1952 | | | 1953 | 1952 |
| Louisiana & Arkansas | Feb. | 756 | 2,098 | 56 | 2,258 | 2,049 | 336 | 327 | 19 | 250 | 259 | 82 | 76 | 572 | 1,310 | 1,287 | 58.0 | 62.8 | 948 | 414 | 471 | 357 |
| | 2 mos. | 756 | 4,203 | 133 | 4,515 | 4,255 | 671 | 658 | 39 | 522 | 511 | 164 | 153 | 1,177 | 2,672 | 2,602 | 59.2 | 61.2 | 1,843 | 837 | 876 | 723 |
| Louisville & Nashville | Feb. | 4,737 | 16,407 | 977 | 18,538 | 19,324 | 2,559 | 2,639 | 220 | 3,702 | 3,802 | 738 | 328 | 6,023 | 13,230 | 14,105 | 71.4 | 73.0 | 5,308 | 2,925 | 2,749 | 2,586 |
| | 2 mos. | 4,737 | 32,852 | 2,231 | 37,600 | 39,574 | 5,077 | 5,365 | 434 | 7,452 | 7,842 | 1,471 | 683 | 12,778 | 27,278 | 28,968 | 72.5 | 73.2 | 10,321 | 5,847 | 5,189 | 5,282 |
| Maine Central | Feb. | 945 | 1,931 | 108 | 2,174 | 2,331 | 440 | 430 | 64 | 338 | 386 | 72 | 21 | 767 | 1,647 | 1,754 | 75.8 | 75.2 | 527 | 238 | 198 | 202 |
| | 2 mos. | 945 | 3,995 | 223 | 4,550 | 4,926 | 868 | 863 | 110 | 698 | 793 | 143 | 41 | 1,544 | 3,317 | 3,564 | 72.9 | 72.4 | 1,233 | 564 | 498 | 499 |
| Midland Valley | Feb. | 334 | 153 | .... | 155 | 148 | 40 | 44 | 6 | 11 | 21 | 2 | 5 | 54 | 116 | 133 | 74.8 | 89.7 | 39 | 16 | 13 | —6 |
| | 2 mos. | 334 | 321 | .... | 326 | 311 | 79 | 89 | 11 | 26 | 35 | 4 | 10 | 116 | 247 | 263 | 75.9 | 84.7 | 79 | 32 | 26 | .... |
| Minneapolis & St. Louis | Feb. | 1,397 | 1,625 | 5 | 1,684 | 1,739 | 291 | 261 | 28 | 245 | 300 | 77 | 126 | 561 | 1,337 | 1,358 | 79.4 | 78.1 | 347 | 230 | 141 | 91 |
| | 2 mos. | 1,397 | 3,226 | 10 | 3,351 | 3,631 | 568 | 519 | 54 | 503 | 581 | 154 | 247 | 1,149 | 2,692 | 2,739 | 80.3 | 75.4 | 659 | 394 | 266 | 280 |
| Minn., St. Paul & Sault Ste. Marie | Feb. | 3,223 | 2,240 | 68 | 2,490 | 2,850 | 616 | 611 | 47 | 643 | 659 | 103 | 70 | 1,177 | 2,635 | 2,750 | 105.8 | 96.5 | —145 | 206 | —379 | —152 |
| | 2 mos. | 3,223 | 4,633 | 143 | 5,142 | 5,469 | 1,208 | 1,153 | 93 | 1,321 | 1,371 | 205 | 147 | 2,444 | 5,371 | 5,571 | 104.5 | 101.9 | —230 | 421 | —666 | —526 |
| Mississippi Central | Feb. | 148 | 215 | .... | 217 | 204 | 43 | 43 | 2 | 27 | 23 | 3 | 13 | 62 | 157 | 152 | 72.4 | 74.4 | 60 | 31 | 19 | 16 |
| | 2 mos. | 148 | 428 | .... | 434 | 430 | 84 | 88 | 4 | 54 | 53 | 6 | 28 | 127 | 316 | 314 | 72.7 | 73.0 | 119 | 56 | 42 | 43 |
| Missouri-Illinois | Feb. | 172 | 439 | .... | 443 | 403 | 72 | 59 | 5 | 71 | 69 | 20 | 12 | 121 | 286 | 262 | 64.6 | 65.1 | 157 | 113 | 62 | 83 |
| | 2 mos. | 172 | 929 | .... | 937 | 816 | 133 | 129 | 8 | 145 | 150 | 41 | 20 | 243 | 563 | 546 | 60.1 | 66.9 | 374 | 238 | 167 | 147 |
| Missouri-Kansas-Texas Lines | Feb. | 3,242 | 6,010 | 243 | 7,134 | 7,042 | 950 | 892 | 93 | 1,053 | 912 | 228 | 251 | 2,304 | 4,839 | 4,783 | 67.8 | 67.9 | 2,295 | 1,010 | 927 | 937 |
| | 2 mos. | 3,242 | 11,980 | 526 | 13,976 | 13,686 | 1,945 | 1,865 | 188 | 2,099 | 1,922 | 453 | 504 | 4,769 | 9,926 | 9,880 | 71.0 | 72.2 | 4,050 | 1,707 | 1,603 | 1,552 |
| Missouri Pacific | Feb. | 6,935 | 16,323 | 854 | 18,923 | 19,469 | 3,361 | 2,825 | 303 | 3,696 | 3,610 | 728 | 455 | 6,701 | 14,809 | 14,887 | 78.3 | 76.5 | 4,114 | 1,410 | 2,200 | 2,208 |
| | 2 mos. | 6,935 | 33,204 | 1,856 | 38,680 | 39,614 | 6,949 | 5,636 | 568 | 7,554 | 7,380 | 1,457 | 918 | 14,104 | 30,786 | 30,188 | 79.6 | 76.2 | 7,895 | 2,684 | 4,186 | 4,792 |
| International-Great Northern | Feb. | 1,104 | 2,663 | 143 | 3,039 | 3,119 | 668 | 651 | 34 | 540 | 550 | 104 | 57 | 1,153 | 2,543 | 2,620 | 83.7 | 84.0 | 496 | 102 | 255 | 252 |
| | 2 mos. | 1,104 | 5,528 | 307 | 6,326 | 6,407 | 1,384 | 1,268 | 72 | 1,089 | 1,094 | 208 | 117 | 2,369 | 5,216 | 5,233 | 82.5 | 81.7 | 1,111 | 268 | 560 | 553 |
| Gulf Coast Lines | Feb. | 1,723 | 3,319 | 89 | 3,629 | 3,845 | 814 | 686 | 38 | 497 | 508 | 106 | 85 | 1,111 | 2,648 | 2,602 | 72.9 | 67.6 | 981 | 341 | 448 | 445 |
| | 2 mos. | 1,723 | 6,880 | 176 | 7,508 | 7,801 | 1,676 | 1,379 | 76 | 1,016 | 1,041 | 205 | 169 | 2,282 | 5,438 | 5,294 | 72.4 | 67.8 | 2,070 | 748 | 922 | 851 |
| Monongahela | Feb. | 178 | 511 | .... | 515 | 725 | 73 | 89 | 11 | 71 | 92 | 9 | 1 | 208 | 360 | 458 | 69.9 | 63.1 | 155 | 31 | —1 | 51 |
| | 2 mos. | 178 | 1,084 | .... | 1,090 | 1,483 | 161 | 194 | 21 | 147 | 195 | 19 | 2 | 439 | 767 | 964 | 70.3 | 65.0 | 324 | 64 | 1 | 75 |
| Montour | Feb. | 51 | 184 | .... | 184 | 204 | 22 | 20 | 3 | 70 | 85 | 18 | 1 | 64 | 166 | 209 | 90.1 | 102.6 | 18 | 47 | 44 | 39 |
| | 2 mos. | 51 | 389 | .... | 393 | 422 | 43 | 44 | 5 | 147 | 167 | 36 | 2 | 140 | 351 | 421 | 89.4 | 99.9 | 41 | 97 | 100 | 78 |
| Nashville, Chatt. & St. Louis | Feb. | 1,032 | 2,783 | 122 | 3,218 | 3,255 | 481 | 485 | 55 | 460 | 485 | 127 | 114 | 1,129 | 2,329 | 2,295 | 72.4 | 70.5 | 889 | 454 | 461 | 463 |
| | 2 mos. | 1,032 | 5,488 | 304 | 6,477 | 6,564 | 895 | 1,012 | 115 | 956 | 964 | 256 | 234 | 2,267 | 4,630 | 4,713 | 71.5 | 71.8 | 1,847 | 924 | 936 | 880 |
| New York Central | Feb. | 10,714 | 47,787 | 8,581 | 64,042 | 65,827 | 8,344 | 7,292 | 965 | 12,819 | 14,244 | 2,355 | 1,066 | 27,576 | 53,096 | 56,674 | 82.9 | 86.1 | 10,947 | 5,089 | 4,740 | 2,935 |
| | 2 mos. | 10,714 | 95,238 | 20,134 | 131,267 | 137,185 | 17,540 | 17,490 | 1,869 | 26,631 | 29,064 | 4,704 | 2,174 | 57,182 | 110,389 | 113,817 | 84.1 | 86.6 | 20,879 | 10,339 | 8,177 | 5,406 |
| Pittsburgh & Lake Erie | Feb. | 221 | 3,451 | 69 | 3,798 | 4,102 | 464 | 429 | 41 | 1,008 | 1,077 | 269 | 74 | 1,321 | 3,096 | 3,248 | 81.5 | 79.2 | 702 | 601 | 953 | 898 |
| | 2 mos. | 221 | 7,438 | 156 | 8,116 | 8,478 | 936 | 941 | 82 | 2,129 | 2,318 | 533 | 148 | 2,764 | 6,437 | 6,781 | 79.3 | 80.0 | 1,678 | 1,296 | 2,046 | 1,812 |
| New York, Chicago & St. Louis | Feb. | 2,184 | 12,507 | 132 | 13,029 | 13,510 | 1,544 | 1,580 | 139 | 2,046 | 2,295 | 333 | 299 | 4,401 | 8,697 | 9,077 | 66.8 | 67.2 | 4,332 | 2,172 | 1,797 | 1,933 |
| | 2 mos. | 2,184 | 25,823 | 328 | 26,941 | 26,754 | 3,351 | 3,398 | 276 | 4,367 | 4,451 | 667 | 608 | 9,202 | 18,416 | 18,429 | 68.4 | 68.9 | 8,526 | 4,227 | 3,478 | 3,544 |
| New York, New Haven & Hartford | Feb. | 1,792 | 7,405 | 3,908 | 12,771 | 13,060 | 1,789 | 2,006 | 260 | 1,977 | 2,025 | 377 | 184 | 5,709 | 10,420 | 10,574 | 81.6 | 81.0 | 2,351 | 975 | 582 | 698 |
| | 2 mos. | 1,792 | 15,072 | 8,211 | 26,232 | 26,802 | 3,666 | 3,832 | 510 | 3,985 | 4,143 | 752 | 369 | 11,628 | 21,205 | 21,497 | 80.8 | 80.2 | 5,026 | 2,080 | 1,350 | 1,602 |
| New York Connecting | Feb. | 21 | 313 | .... | 343 | 378 | 83 | 71 | 25 | 17 | 35 | .... | .... | 85 | 188 | 196 | 54.7 | 51.7 | 156 | 82 | 62 | 120 |
| | 2 mos. | 21 | 697 | .... | 758 | 706 | 153 | 132 | 50 | 45 | 55 | .... | .... | 177 | 381 | 347 | 50.3 | 49.2 | 377 | 156 | 210 | 234 |
| New York, Ontario & Western | Feb. | 541 | 519 | .... | 532 | 536 | 95 | 100 | 17 | 83 | 83 | 23 | 24 | 247 | 480 | 493 | 90.1 | 92.0 | 52 | 34 | —39 | —45 |
| | 2 mos. | 541 | 1,028 | 2 | 1,060 | 1,104 | 183 | 203 | 35 | 164 | 167 | 45 | 48 | 509 | 967 | 1,012 | 91.2 | 91.7 | 94 | 69 | —95 | —92 |
| New York, Susquehanna & Western | Feb. | 120 | 373 | 38 | 430 | 455 | 51 | 53 | 5 | 61 | 62 | 12 | 9 | 196 | 345 | 341 | 80.2 | 74.9 | 85 | 32 | 15 | 54 |
| | 2 mos. | 120 | 760 | 81 | 880 | 899 | 107 | 108 | 11 | 122 | 122 | 23 | 17 | 403 | 702 | 700 | 79.7 | 77.8 | 178 | 66 | 32 | 75 |
| Norfolk & Western | Feb. | 2,135 | 12,850 | 379 | 13,835 | 17,441 | 2,243 | 2,219 | 283 | 3,358 | 3,849 | 606 | 291 | 4,665 | 11,157 | 12,117 | 80.6 | 69.5 | 2,678 | 2,096 | 1,205 | 2,426 |
| | 2 mos. | 2,135 | 27,036 | 827 | 29,236 | 35,301 | 4,508 | 4,521 | 561 | 6,878 | 7,830 | 1,298 | 569 | 9,645 | 22,871 | 24,861 | 78.2 | 70.4 | 6,366 | 4,786 | 2,969 | 4,674 |
| Norfolk Southern | Feb. | 620 | 838 | .... | 851 | 976 | 206 | 193 | 13 | 128 | 114 | 27 | 51 | 275 | 749 | 727 | 88.0 | 74.5 | 102 | 49 | 14 | 76 |
| | 2 mos. | 620 | 1,712 | .... | 1,741 | 1,938 | 436 | 374 | 25 | 266 | 242 | 54 | 102 | 559 | 1,536 | 1,473 | 88.2 | 76.0 | 206 | 108 | 31 | 139 |
| Northern Pacific | Feb. | 6,881 | 10,673 | 547 | 12,172 | 13,202 | 1,930 | 2,011 | 325 | 2,764 | 2,913 | 414 | 296 | 5,086 | 10,758 | 11,359 | 88.4 | 86.0 | 1,415 | 1,174 | 646 | 915 |
| | 2 mos. | 6,881 | 22,266 | 1,194 | 25,520 | 25,456 | 3,867 | 4,248 | 586 | 5,475 | 5,923 | 825 | 622 | 10,914 | 22,321 | 23,517 | 87.5 | 92.4 | 3,199 | 2,386 | 1,482 | 196 |
| Northwestern Pacific | Feb. | 331 | 969 | 2 | 1,046 | 924 | 301 | 285 | 16 | 89 | 113 | 4 | 4 | 396 | 808 | 797 | 77.2 | 86.2 | 238 | 59 | 53 | —13 |
| | 2 mos. | 331 | 1,796 | 3 | 1,901 | 1,641 | 658 | 582 | 32 | 202 | 201 | 8 | 9 | 806 | 1,728 | 1,566 | 90.9 | 95.5 | 173 | 120 | —203 | —198 |
| Oklahoma City-Ada-Atoka | Feb. | 132 | 66 | .... | 67 | 89 | 22 | 22 | 2 | 1 | 3 | .... | 2 | 19 | 48 | 51 | 72.3 | 57.1 | 19 | 6 | 2 | 10 |
| | 2 mos. | 132 | 137 | .... | 138 | 189 | 44 | 40 | 5 | 2 | 16 | .... | 4 | 39 | 95 | 112 | 69.0 | 59.1 | 43 | 15 | 5 | 19 |
| Pennsylvania | Feb. | 10,090 | 59,608 | 11,042 | 78,123 | 82,685 | 10,118 | 10,811 | 1,387 | 16,709 | 18,549 | 2,189 | 1,312 | 33,678 | 65,295 | 71,355 | 83.6 | 86.3 | 12,828 | 5,478 | 5,528 | 4,588 |
| | 2 mos. | 10,090 | 122,467 | 25,381 | 163,535 | 170,616 | 20,570 | 22,572 | 2,834 | 36,259 | 38,383 | 4,757 | 2,595 | 70,408 | 136,856 | 147,085 | 83.7 | 86.2 | 26,679 | 11,603 | 11,495 | 9,676 |
| Pennsylvania Reading Seashore Lines | Feb. | 364 | 562 | 101 | 684 | 708 | 196 | 201 | 24 | 88 | 93 | 15 | 9 | 545 | 873 | 860 | 127.5 | 121.4 | —188 | 91 | —388 | —367 |
| | 2 mos. | 364 | 1,108 | 200 | 1,356 | 1,482 | 413 | 413 | 48 | 183 | 190 | 30 | 18 | 1,083 | 1,767 | 1,774 | 130.3 | 119.7 | —411 | 212 | —851 | —728 |




**Completely metal-enclosed G-E load-center unit substations, like this modern 500 KVA unit (left) outside the diesel-repair shop and this compact 750 KVA unit (right) outside the armature shop, help supply power to the remodeled Collinwood diesel-repair center.**

# New York Central Meets Power Needs at Collinwood With G-E Load-Center Unit Substations

*The New York Central, Collinwood, Ohio*—To meet new power demands more efficiently at its Collinwood diesel-electric repair center, the New York Central has installed compact G-E unit substations.

These load-center unit substations save copper by receiving power at high voltage for delivery at 480 volts near the loads in this modern diesel-repair shop. This means minimum voltage spreads throughout the shop, reduced speed variations in machine tools, and lower distribution losses.

For details on how standard G-E power distribution equipment enables you to keep pace with higher load demands, consult your nearest G-E apparatus sales representative. He can help you determine the most efficient way to distribute power in modernizing your railroad installations. General Electric Company, Schenectady 5, N. Y. 152-42

*You can put your confidence in—*

**GENERAL ELECTRIC**

# REVENUES AND EXPENSES OF RAILWAYS

*(Dollar figures are stated in thousands; i.e., with last three digits omitted)*

MONTH OF FEBRUARY AND TWO MONTHS OF CALENDAR YEAR 1953

| Name of Road | Average mileage operated during period | Operating Revenues: Freight | Pass. | Total (inc. misc.) 1953 | Total (inc. misc.) 1952 | Operating Expenses: Maint. Way and Structures: Total 1953 | Total 1952 | Deprec. and Retirements | Maint. Equipment: Total 1953 | Total 1952 | Deprec. and Retirements | Traffic | Transportation | Total 1953 | Total 1952 | Operating ratio 1953 | Operating ratio 1952 | Net from railway operation | Railway tax accruals | Net railway operating income 1953 | Net railway operating income 1952 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pittsburg & Shawmut | Feb. | 97 | 166 | .... | 166 | 181 | 35 | 24 | 4 | 59 | 56 | 9 | 3 | 48 | 155 | 144 | 93.1 | 79.3 | 11 | 6 | 38 | 57 |
| | 2 mo. | 97 | 338 | .... | 339 | 366 | 76 | 47 | 7 | 117 | 120 | 17 | 7 | 93 | 312 | 295 | 91.8 | 80.7 | 27 | 11 | 79 | 107 |
| Pittsburgh & West Virginia | Feb. | 132 | 710 | .... | 719 | 729 | 89 | 108 | 23 | 161 | 195 | 34 | 56 | 178 | 517 | 569 | 71.9 | 78.0 | 202 | 100 | 122 | 114 |
| | 2 mos. | 132 | 1,446 | .... | 1,465 | 1,436 | 192 | 212 | 47 | 346 | 400 | 69 | 116 | 368 | 1,088 | 1,148 | 74.3 | 80.0 | 376 | 194 | 236 | 207 |
| Reading | Feb. | 1,310 | 9,232 | 546 | 10,440 | 10,929 | 1,341 | 1,420 | 224 | 2,239 | 2,100 | 430 | 145 | 4,115 | 8,230 | 8,289 | 78.8 | 75.8 | 2,209 | 1,062 | 1,163 | 1,298 |
| | 2 mos. | 1,311 | 19,391 | 1,208 | 21,990 | 22,740 | 3,004 | 2,996 | 492 | 4,529 | 4,410 | 860 | 300 | 8,410 | 17,043 | 17,434 | 77.5 | 76.7 | 4,947 | 2,475 | 2,480 | 2,587 |
| Richmond, Fredericksburg & Potomac | Feb. | 118 | 1,373 | 582 | 2,284 | 2,516 | 298 | 261 | 24 | 294 | 279 | 69 | 27 | 697 | 1,468 | 1,471 | 64.2 | 58.5 | 817 | 449 | 236 | 342 |
| | 2 mos. | 118 | 2,932 | 1,290 | 4,887 | 5,068 | 607 | 540 | 48 | 615 | 567 | 138 | 49 | 1,476 | 3,069 | 2,999 | 62.8 | 59.2 | 1,817 | 982 | 577 | 662 |
| Rutland | Feb. | 394 | 388 | 19 | 468 | 483 | 66 | 77 | 10 | 63 | 79 | 14 | 21 | 205 | 385 | 433 | 82.2 | 89.7 | 83 | 31 | 26 | 2 |
| | 2 mos. | 394 | 746 | 39 | 913 | 999 | 148 | 157 | 19 | 143 | 168 | 28 | 41 | 421 | 812 | 889 | 89.0 | 89.0 | 101 | 54 | 1 | 13 |
| Sacramento Northern | Feb. | 264 | 401 | .... | 408 | 322 | 20 | 61 | —43 | 21 | 13 | 4 | 3 | 78 | 131 | 168 | 32.1 | 52.2 | 277 | 14 | 238 | 119 |
| | 2 mos. | 264 | 819 | .... | 831 | 521 | 77 | 120 | —40 | 53 | 28 | 8 | 5 | 161 | 313 | 334 | 37.7 | 64.1 | 518 | 29 | 439 | 118 |
| St. Louis-San Francisco | Feb. | 4,601 | 8,345 | 485 | 9,568 | 9,755 | 1,597 | 1,671 | 137 | 1,668 | 1,684 | 472 | 329 | 3,689 | 7,803 | 7,746 | 81.6 | 79.4 | 1,765 | 836 | 774 | 931 |
| | 2 mos. | 4,601 | 17,769 | 1,030 | 20,345 | 19,919 | 3,208 | 3,347 | 294 | 3,583 | 3,410 | 942 | 649 | 7,527 | 15,996 | 15,827 | 78.6 | 79.5 | 4,349 | 2,185 | 1,973 | 1,796 |
| St. Louis-San Francisco & Texas | Feb. | 159 | 488 | 8 | 524 | 441 | 66 | 46 | 6 | 42 | 37 | 1 | 24 | 138 | 280 | 257 | 53.5 | 58.3 | 243 | 131 | 75 | 90 |
| | 2 mos. | 159 | 846 | 14 | 920 | 857 | 127 | 94 | 9 | 80 | 70 | 2 | 51 | 300 | 578 | 537 | 62.9 | 62.6 | 342 | 158 | 97 | 196 |
| St. Louis-Southwestern Lines | Feb. | 1,568 | 6,305 | 12 | 6,504 | 6,077 | 888 | 581 | 50 | 586 | 606 | 103 | 173 | 1,614 | 3,389 | 3,243 | 52.1 | 53.4 | 3,115 | 1,828 | 986 | 846 |
| | 2 mos. | 1,568 | 12,124 | 39 | 12,549 | 12,165 | 1,791 | 1,207 | 108 | 1,191 | 1,281 | 206 | 337 | 3,296 | 6,920 | 6,672 | 55.1 | 54.8 | 5,629 | 3,255 | 1,896 | 1,634 |
| Seaboard Air Line | Feb. | 4,080 | 11,706 | 1,401 | 14,202 | 14,460 | 2,352 | 2,254 | 176 | 2,303 | 2,264 | 507 | 389 | 4,354 | 9,980 | 10,079 | 70.3 | 69.7 | 4,223 | 1,774 | 2,149 | 1,958 |
| | 2 mos. | 4,080 | 23,717 | 2,991 | 28,907 | 28,845 | 4,670 | 4,447 | 353 | 4,798 | 4,627 | 1,008 | 768 | 8,892 | 20,317 | 20,317 | 70.3 | 70.4 | 8,589 | 3,613 | 4,347 | 3,828 |
| Southern | Feb. | 6,299 | 18,512 | 1,252 | 21,304 | 21,388 | 2,768 | 3,035 | 198 | 3,611 | 4,048 | 739 | 433 | 6,580 | 14,217 | 15,797 | 66.7 | 73.9 | 7,087 | 3,456 | 3,356 | 2,284 |
| | 2 mos. | 6,299 | 38,630 | 2,947 | 44,758 | 43,515 | 5,723 | 6,117 | 435 | 7,570 | 8,247 | 1,470 | 869 | 14,035 | 29,945 | 32,430 | 66.9 | 74.5 | 14,813 | 7,368 | 6,541 | 4,406 |
| Alabama-Great Southern | Feb. | 326 | 1,384 | 69 | 1,556 | 1,548 | 226 | 211 | 38 | 308 | 347 | 72 | 43 | 419 | 1,056 | 1,175 | 67.9 | 75.9 | 500 | 267 | 220 | 100 |
| | 2 mos. | 326 | 2,850 | 155 | 3,234 | 3,114 | 458 | 456 | 55 | 642 | 733 | 143 | 78 | 919 | 2,221 | 2,481 | 68.7 | 79.7 | 1,012 | 526 | 412 | 177 |
| Cinn., New Orleans & Texas | Feb. | 337 | 3,285 | 185 | 3,675 | 3,569 | 429 | 442 | 34 | 798 | 843 | 176 | 72 | 949 | 2,371 | 2,519 | 64.5 | 70.6 | 1,304 | 745 | 619 | 353 |
| | 2 mos. | 337 | 6,633 | 412 | 7,468 | 7,110 | 855 | 901 | 65 | 1,573 | 1,626 | 350 | 142 | 1,984 | 4,816 | 4,978 | 64.5 | 70.0 | 2,653 | 1,450 | 1,180 | 837 |
| Georgia Southern & Florida | Feb. | 397 | 647 | 92 | 808 | 773 | 160 | 172 | 6 | 62 | 62 | 7 | 10 | 230 | 484 | 500 | 59.9 | 64.7 | 324 | 86 | 76 | 69 |
| | 2 mos. | 397 | 1,314 | 194 | 1,659 | 1,543 | 331 | 339 | 15 | 152 | 133 | 13 | 18 | 451 | 999 | 1,009 | 60.2 | 65.4 | 660 | 183 | 150 | 127 |
| New Orleans Northeastern | Feb. | 203 | 916 | 48 | 1,014 | 949 | 141 | 151 | 15 | 119 | 110 | 26 | 20 | 220 | 538 | 728 | 53.0 | 76.7 | 476 | 273 | 175 | 51 |
| | 2 mos. | 203 | 1,842 | 104 | 2,066 | 1,766 | 298 | 343 | 29 | 247 | 245 | 52 | 40 | 471 | 1,139 | 1,367 | 55.1 | 77.4 | 927 | 523 | 319 | 81 |
| Southern Pacific | Feb. | 8,113 | 36,387 | 2,994 | 42,031 | 42,414 | 4,982 | 5,884 | 456 | 8,576 | 8,164 | 1,659 | 831 | 15,595 | 31,869 | 32,359 | 75.8 | 76.3 | 10,161 | 5,755 | 3,617 | 3,989 |
| | 2 mos. | 8,113 | 74,105 | 6,590 | 86,223 | 83,120 | 10,214 | 10,519 | 893 | 17,359 | 16,555 | 3,304 | 1,645 | 31,839 | 64,959 | 64,661 | 75.3 | 77.8 | 21,265 | 11,330 | 8,130 | 7,269 |
| Texas & New Orleans | Feb. | 4,291 | 11,154 | 549 | 12,357 | 12,363 | 1,915 | 1,763 | 111 | 1,499 | 1,652 | 86 | 276 | 3,931 | 8,192 | 8,478 | 66.3 | 68.6 | 4,165 | 1,914 | 1,295 | 1,175 |
| | 2 mos. | 4,290 | 22,749 | 1,170 | 25,379 | 24,855 | 4,013 | 3,559 | 245 | 3,132 | 3,492 | 172 | 542 | 8,090 | 16,919 | 17,200 | 66.7 | 69.2 | 8,461 | 3,902 | 2,597 | 2,260 |
| Spokane International | Feb. | 152 | 228 | 1 | 239 | 190 | 52 | 64 | 2 | 19 | 19 | 8 | 5 | 55 | 141 | 151 | 59.1 | 79.1 | 98 | 43 | 46 | 14 |
| | 2 mos. | 152 | 423 | 2 | 448 | 400 | 102 | 135 | 4 | 44 | 43 | 16 | 11 | 116 | 294 | 323 | 65.6 | 80.8 | 154 | 60 | 70 | 28 |
| Spokane, Portland & Seattle | Feb. | 944 | 2,290 | 64 | 2,488 | 2,297 | 338 | 338 | 45 | 305 | 285 | 94 | 30 | 785 | 1,543 | 1,469 | 62.0 | 63.9 | 945 | 337 | 497 | 450 |
| | 2 mos. | 944 | 4,467 | 160 | 4,906 | 4,603 | 754 | 689 | 90 | 678 | 632 | 187 | 63 | 1,529 | 3,190 | 3,053 | 65.0 | 66.3 | 1,716 | 614 | 825 | 908 |
| Tennessee Central | Feb. | 286 | 387 | 9 | 423 | 456 | 86 | 115 | 5 | 64 | 70 | 20 | 11 | 142 | 325 | 358 | 77.0 | 78.6 | 97 | 20 | 38 | 39 |
| | 2 mos. | 286 | 841 | 15 | 908 | 916 | 186 | 215 | 10 | 129 | 139 | 39 | 23 | 289 | 671 | 723 | 73.9 | 79.0 | 237 | 47 | 107 | 74 |
| Texas & Northern | Feb. | 8 | 110 | .... | 118 | 110 | 5 | 8 | .... | 9 | 8 | 2 | 1 | 16 | 36 | 44 | 30.4 | 40.2 | 82 | 36 | 27 | 22 |
| | 2 mos. | 8 | 215 | .... | 225 | 191 | 10 | 12 | .... | 19 | 19 | 5 | 2 | 28 | 69 | 83 | 30.6 | 43.7 | 156 | 59 | 59 | 36 |
| Texas & Pacific | Feb. | 1,834 | 6,261 | 294 | 7,090 | 6,510 | 990 | 935 | 86 | 1,092 | 1,105 | 242 | 194 | 2,202 | 4,814 | 4,649 | 67.9 | 71.4 | 2,275 | 837 | 981 | 669 |
| | 2 mos. | 1,834 | 12,642 | 671 | 14,442 | 13,217 | 1,928 | 1,952 | 172 | 2,190 | 2,298 | 490 | 381 | 4,504 | 9,665 | 9,578 | 66.9 | 72.5 | 4,777 | 1,871 | 2,057 | 1,341 |
| Texas Mexican | Feb. | 162 | 261 | .... | 275 | 239 | 53 | 88 | 10 | 24 | 23 | 8 | 9 | 69 | 175 | 192 | 63.7 | 80.3 | 100 | 40 | 35 | 12 |
| | 2 mos. | 162 | 541 | .... | 573 | 500 | 103 | 160 | 15 | 52 | 55 | 16 | 17 | 135 | 349 | 378 | 60.9 | 75.6 | 224 | 96 | 80 | 35 |
| Toledo, Peoria & Western | Feb. | 239 | 597 | .... | 606 | 567 | 93 | 81 | 6 | 41 | 37 | 10 | 48 | 124 | 339 | 337 | 55.9 | 59.5 | 268 | 128 | 99 | 79 |
| | 2 mos. | 239 | 1,213 | .... | 1,233 | 1,180 | 201 | 162 | 13 | 88 | 84 | 19 | 97 | 254 | 702 | 686 | 56.9 | 58.1 | 531 | 249 | 192 | 176 |
| Union Pacific | Feb. | 9,823 | 32,985 | 2,468 | 38,057 | 39,076 | 4,695 | 4,165 | 467 | 7,550 | 7,407 | 1,193 | 824 | 14,252 | 29,507 | 28,958 | 77.5 | 74.1 | 8,550 | 5,741 | 1,712 | 2,532 |
| | 2 mos. | 9,824 | 66,701 | 5,531 | 77,908 | 78,226 | 9,439 | 8,845 | 900 | 15,616 | 15,144 | 2,391 | 1,837 | 29,473 | 60,773 | 59,926 | 78.0 | 76.6 | 17,135 | 11,319 | 3,254 | 4,179 |
| Utah | Feb. | 110 | 72 | .... | 72 | 166 | 20 | 21 | 2 | 42 | 49 | 9 | 1 | 34 | 106 | 162 | 146.7 | 97.3 | —34 | 10 | —30 | —5 |
| | 2 mos. | 110 | 216 | .... | 216 | 394 | 43 | 42 | 4 | 89 | 110 | 19 | 2 | 86 | 235 | 364 | 108.8 | 92.4 | —19 | 20 | —24 | 4 |
| Virginian | Feb. | 611 | 2,842 | 1 | 2,931 | 4,312 | 387 | 471 | 61 | 662 | 964 | 160 | 46 | 723 | 1,903 | 2,578 | 64.9 | 59.8 | 1,027 | 658 | 550 | 855 |
| | 2 mos. | 611 | 6,144 | 3 | 6,346 | 8,964 | 856 | 1,003 | 116 | 1,496 | 1,952 | 336 | 92 | 1,535 | 4,165 | 5,270 | 65.6 | 58.8 | 2,181 | 1,406 | 1,164 | 2,018 |
| Wabash | Feb. | 2,393 | 8,262 | 397 | 9,313 | 9,455 | 1,088 | 1,053 | 96 | 1,183 | 1,240 | 354 | 302 | 3,875 | 6,770 | 6,661 | 72.7 | 70.4 | 2,543 | 1,024 | 1,002 | 1,111 |
| | 2 mos. | 2,393 | 16,072 | 874 | 18,359 | 18,448 | 2,196 | 2,152 | 214 | 2,400 | 2,532 | 708 | 601 | 7,709 | 13,600 | 13,665 | 74.1 | 74.1 | 4,759 | 1,947 | 1,899 | 1,856 |
| Ann Arbor | Feb. | 294 | 640 | .... | 644 | 813 | 76 | 87 | 6 | 120 | 115 | 30 | 26 | 285 | 526 | 562 | 81.6 | 69.1 | 118 | 48 | 54 | 117 |
| | 2 mos. | 294 | 1,418 | .... | 1,429 | 1,514 | 155 | 180 | 12 | 239 | 235 | 60 | 52 | 571 | 1,054 | 1,142 | 73.7 | 75.4 | 375 | 169 | 173 | 168 |
| Western Maryland | Feb. | 831 | 3,638 | 5 | 3,827 | 4,325 | 459 | 464 | 44 | 691 | 889 | 166 | 88 | 1,224 | 2,625 | 2,915 | 68.6 | 67.4 | 1,201 | 649 | 723 | 823 |
| | 2 mos. | 831 | 7,874 | 13 | 8,292 | 8,829 | 943 | 958 | 91 | 1,480 | 1,805 | 351 | 176 | 2,538 | 5,489 | 6,056 | 66.2 | 68.6 | 2,803 | 1,558 | 1,596 | 1,568 |
| Western Pacific | Feb. | 1,193 | 4,440 | 237 | 4,759 | 4,184 | 765 | 669 | 150 | 605 | 666 | 123 | 232 | 1,322 | 3,141 | 3,095 | 66.0 | 74.0 | 1,619 | 856 | 688 | 414 |
| | 2 mos. | 1,193 | 8,732 | 481 | 9,394 | 7,944 | 1,534 | 1,373 | 220 | 1,242 | 1,344 | 252 | 414 | 2,733 | 6,385 | 6,253 | 68.0 | 78.7 | 3,008 | 1,558 | 1,226 | 571 |
| Wisconsin Central | Feb. | 1,046 | 2,311 | 33 | 2,481 | 2,589 | 338 | 321 | 36 | 473 | 451 | 68 | 64 | 1,089 | 2,068 | 2,042 | 83.3 | 78.9 | 413 | 131 | 78 | 226 |
| | 2 mos. | 1,046 | 4,686 | 74 | 5,042 | 5,082 | 648 | 666 | 71 | 927 | 946 | 135 | 133 | 2,119 | 4,031 | 4,180 | 79.9 | 82.3 | 1,011 | 278 | 377 | 300 |

# Rutland Railroad Cuts Operating Costs 43% With Alco-GE Diesels

Just 15 Alco-GE diesel-electrics have enabled the Rutland railroad to cut operating costs by 43%. These 1600-hp road switchers now are handling 95% of the Rutland's locomotive miles, a task that once required more than 50 steamers.

Alco-GE motive power also has enabled the Rutland to:

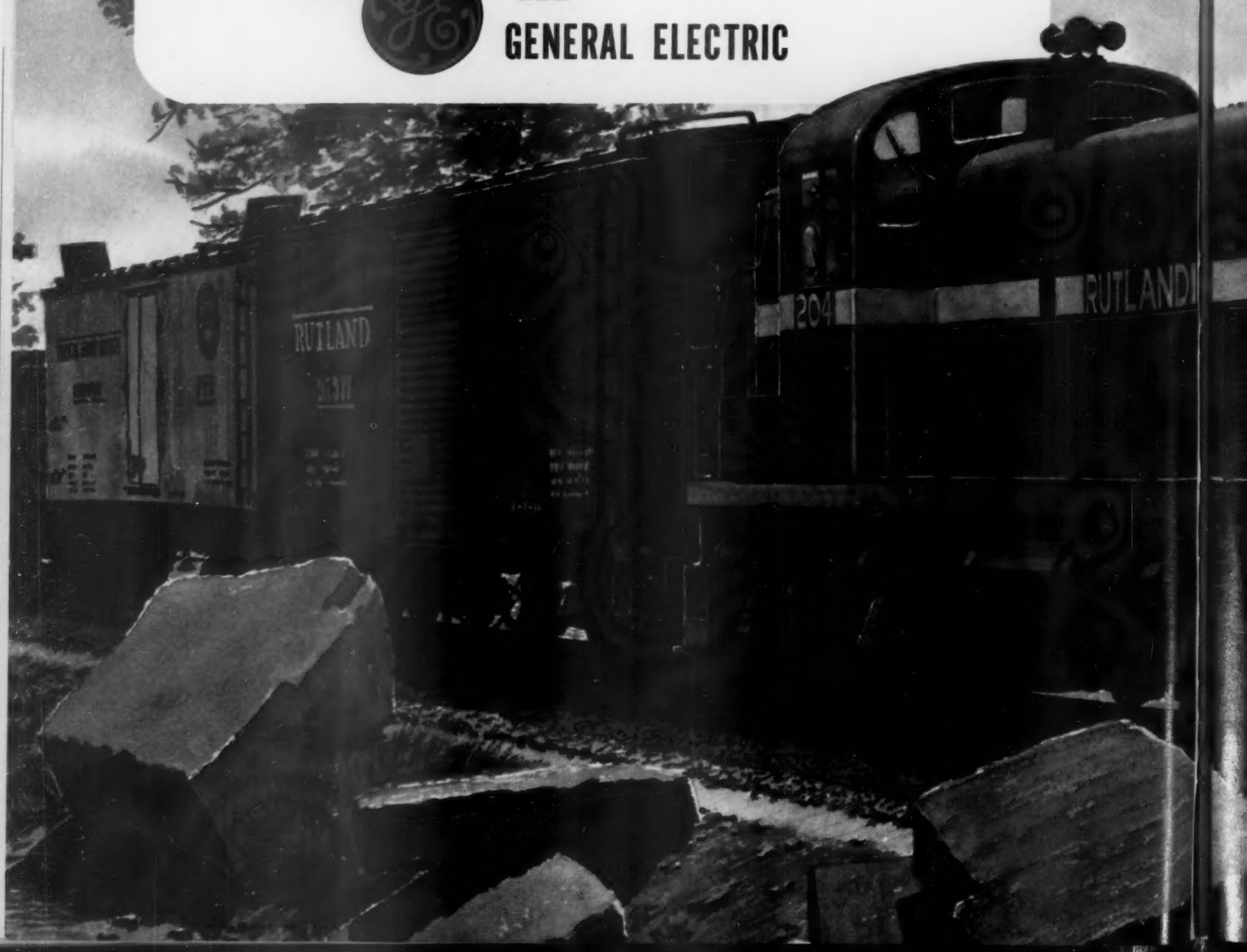
- Increase freight miles per locomotive day by 100.6%.
- Increase passenger miles per locomotive day by 48.4%.
- Cut fuel costs by 49.6%.

These all-purpose road switchers have cut more than two hours from the running time on the Rutland's speedy through-freight service between Bellows Falls and Ogdensburg. Helper service has been eliminated.

From heavy-drag duty to passenger service on as little as 10-minute turn-around is standard practice in the Rutland's story of around-the-clock availability of Alco-GE diesel-electrics . . . a story of new muscle in a fine old railroad. 113-309

Alco GE

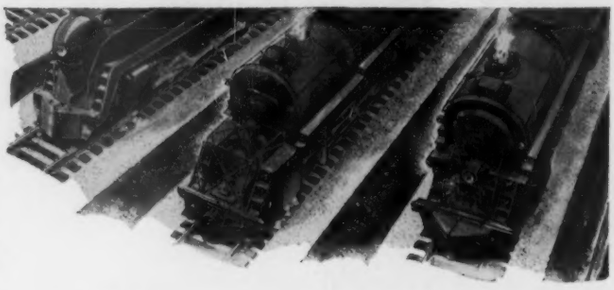
**AMERICAN LOCOMOTIVE and GENERAL ELECTRIC**




204
204

# NORFOLK and WESTERN RAILWAY COMPANY

## SUMMARY OF ANNUAL REPORT FOR 1952



Gross operating revenues declined in 1952 principally because of a prolonged strike in the steel industry, smaller demand for export coal and intermittent stoppages in Bituminous Coal production during the year.

Higher labor and material costs and interruptions in operations accounted for the increase from 66.92 to 70.83 in the percentage of revenues consumed by operating expenses.

Total taxes amounted to $39,557,000, a decrease of $9,869,000, chiefly in Federal income tax, due to lower income. Taxes amounted to $1,808 for each employee, $7.03 for each share of Common Stock and 20 cents for each dollar of operating revenues.

Outstanding funded debt amounted to $35,792,000, which represented 18.04 per cent of total capitalization. A voluntary sinking fund reserve was created in 1937 to meet these obligations, which mature in 1989 and 1996. At the end of 1952, this reserve had sufficient assets, together with Company bonds in the treasury, purchased and held for later transfer to the fund, with investment of income, to retire the entire debt when due. Appropriations of $600,000 per year to the sinking fund were discontinued as of January 1, 1953. Since February 1925, the Company's Funded Debt, including equipment obligations, has been reduced 71 per cent from its peak of $123,637,000 to its present $35,792,000.

Dividends on outstanding stock totaled $20,570,000, which was 73 per cent of Balance of Income. Dividends at the annual rate of $1.00 a share were paid on Adjustment Preferred Stock and $3.50 a share on Common Stock. The latter included an extra dividend of $.50. Dividends on Common Stock have been paid without interruption beginning in 1901.

During the year, the Atomic Energy Commission announced decision to construct a huge gaseous diffusion plant adjacent to the Company's line north of Portsmouth, Ohio, at a cost of $1,200,000,000. In addition, 153 new industries and expansion of existing plants, with a total capital investment of $93,802,000, employing 6,890 persons, were constructed in Norfolk and Western territory.

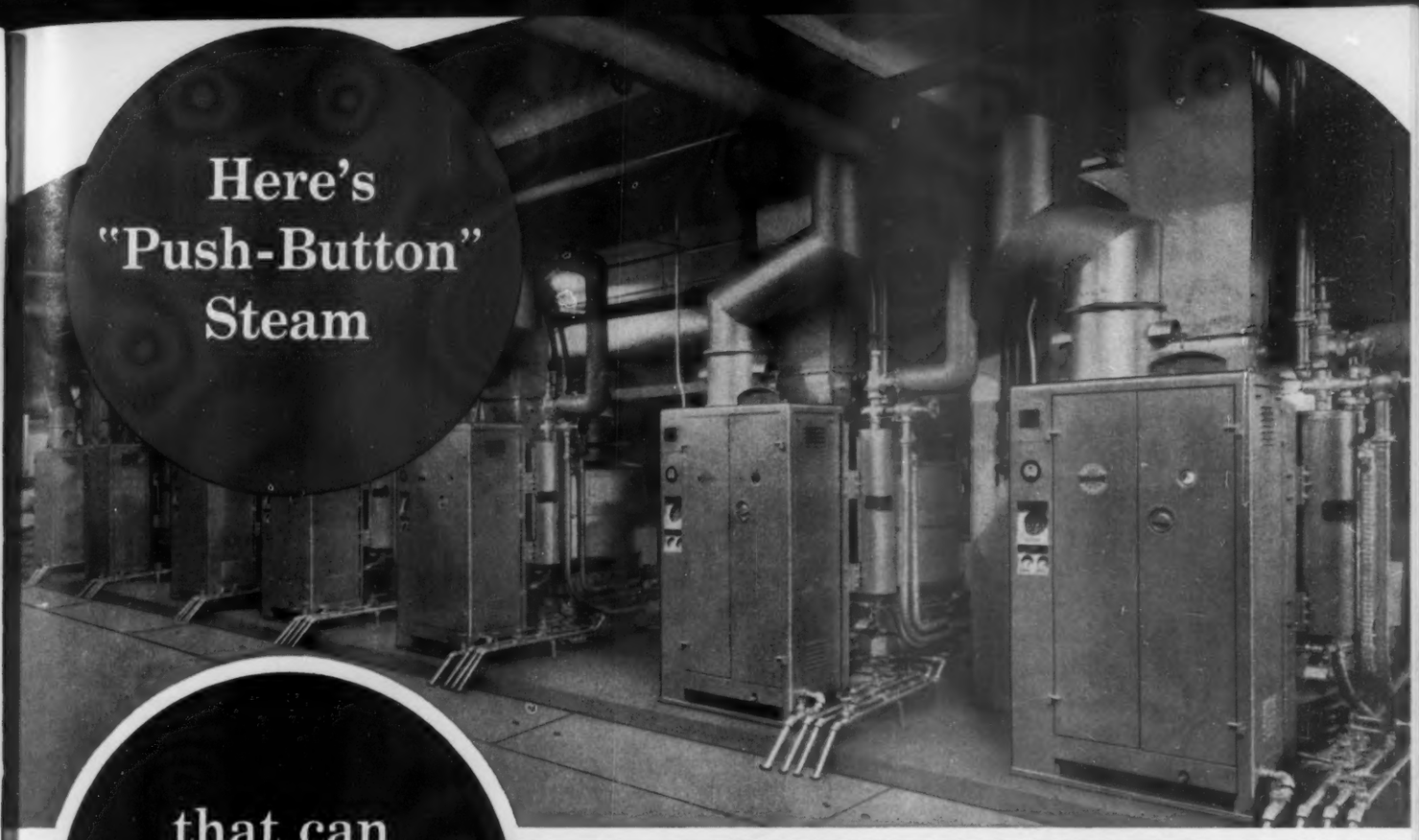
Capital expenditures for additions and improvements to fixed properties were $11,337,000 and for new equipment and equipment betterments $17,497,000, a total of $28,834,000. A double track main line relocation and grade revision, five miles in length, was completed at a cost of $3,950,000. This concluded, at an approximate cost of $17,000,000, a grade improvement project through mountainous territory which replaced a single track tunnel with a double track tunnel, eliminated ten bridges, reduced curvatures, and reduced a ruling grade from 2 per cent to 1.4 per cent.

Since 1945, capital expenditures for improvements, modernization and equipment have amounted to $171,473,000, all of which were made from the Company's treasury. Uncompleted authorized capital expenditures at the beginning of 1953 totaled approximately $34,964,000.

The new equipment program for 1953 includes 3,802 freight cars and 15 switching steam locomotives. Experiments with two types of coal-burning turbine electric locomotives continue.

### CONDENSED INCOME STATEMENT

| | | 1952 | | Comparison With 1951 | Per Cent |
|---|---|---|---|---|---|
| REVENUES AND OTHER INCOME: | | | | | |
| Freight—Coal | | $109,861,559 | Dec. | $12,678,336 | 10 |
| Other | | 70,883,748 | Inc. | 2,609,533 | 4 |
| Passenger | | 5,477,640 | Dec. | 590,241 | 10 |
| Mail, Express and Miscellaneous | | 9,427,620 | Dec. | 285,823 | 3 |
| Total Railway Operating Revenues | | $195,650,567 | Dec. | $10,944,867 | 5 |
| Rent Income—Equipment and Joint Facilities—Net | | 11,033,985 | Dec. | 10,795 | |
| Other Income—Net | | 2,275,297 | Dec. | 243,795 | 10 |
| Total | | $208,959,849 | Dec. | $11,199,457 | 5 |
| EXPENSES AND OTHER CHARGES: | | | | | |
| Way and Structure—Repairs and Maintenance | | $28,715,504 | Inc. | $1,396,032 | 5 |
| Equipment—Repairs and Maintenance | | 40,203,292 | Inc. | 1,176,303 | 3 |
| Transportation—Operations | | 58,349,105 | Dec. | 2,869,884 | 5 |
| Other Expenses | | 11,312,456 | Inc. | 619,574 | 6 |
| Total Railway Operating Expenses | | $138,580,357 | Inc. | $ 322,025 | |
| Taxes—Federal | $30,756,931 | | | | |
| State, County and Local | 8,799,866 | 39,556,797 | Dec. | 9,869,341 | 20 |
| Interest on Funded Debt | | 1,521,866 | Dec. | 201,947 | 12 |
| Total | | $179,658,939 | Dec. | $9,749,263 | 5 |
| NET INCOME | | $ 29,300,910 | Dec. | $ 1,450,194 | 5 |
| SINKING AND OTHER RESERVE FUNDS—APPROPRIATIONS | | 1,151,566 | Dec. | 177,718 | 13 |
| BALANCE OF INCOME | | $ 28,149,344 | Dec. | $ 1,272,476 | 4 |



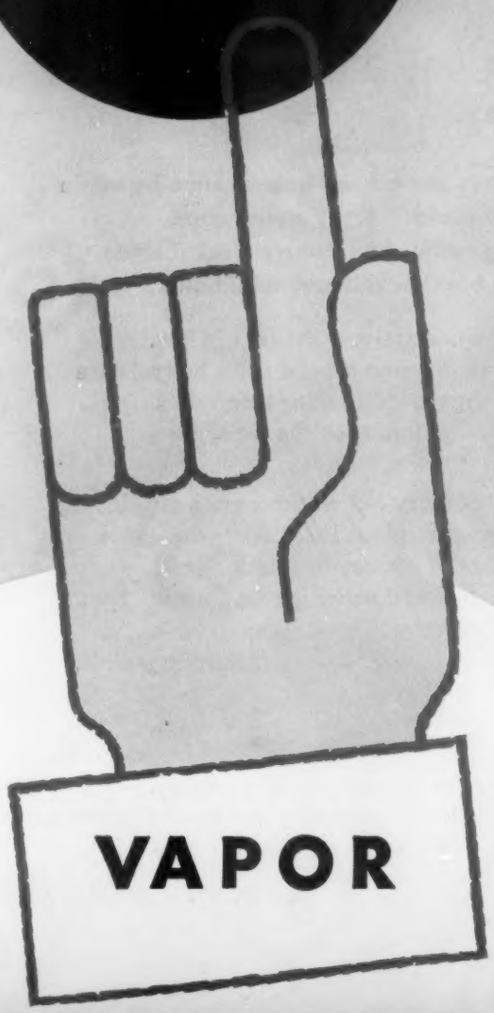
# Here's "Push-Button" Steam

## that can save you money!

This bank of seven Vapor-Clarkson Industrial Steam Generators is capable of supplying over 35,000 pounds of steam per hour at pressures from 75 to 300 p.s.i. Units turn on and off individually and automatically as steam demand fluctuates. There's no waiting — no wasted fuel or water — with this closed-circuit installation.

Like the thousands of similar Vapor units used to generate heating-steam on Diesels, Vapor Industrial Steam Generators deliver steam from a cold start in two minutes . . . take little space . . . virtually tend themselves. They can be installed individually or in groups—require no boiler room, expensive foundation, or stack—and, as this low-ceiling basement shows, need a minimum of headroom.

There is virtually no limit to money-saving uses — stationary, mobile, portable — for power, processing, heating. Fully self-contained, and only about one-fifth the size of conventional boilers of same rating, Vapor Industrial Steam Generators (oil or gas) merit your immediate investigation.




**VAPOR HEATING CORPORATION**

80 EAST JACKSON BLVD., CHICAGO 4, ILLINOIS

NEW YORK • ST. PAUL • DENVER • ST. LOUIS • ATLANTA • WASHINGTON • PHILADELPHIA
SAN FRANCISCO • JACKSONVILLE • RICHMOND • HOUSTON • MONTREAL • LOS ANGELES

UNARCO

# Suburban PASSENGER SHELTERS

## increase railroad profits both ways!

**In only two ways can a fixed-fare revenue be made to yield greater profits. 1. *By cutting costs.* 2. *By increasing traffic.* And Unarco steel shelters can help to do both for railroad suburban service.**

Savings start immediately. First-cost is low. Installation is simple—no special skills or tools are required. And these good-looking structures attract more commuters with the welcome protection they give.

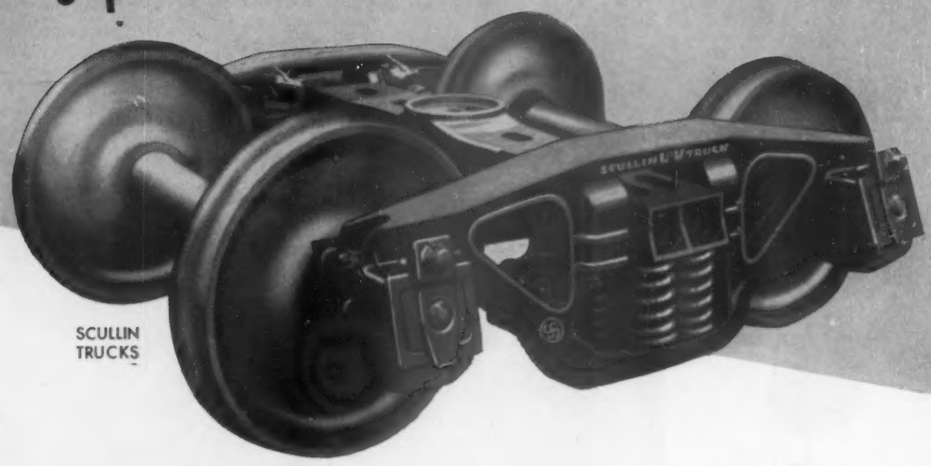
Maintenance-hungry old stations are a continuing source of expense. Replace them now with these modern buildings of corrosion-resisting steel. For new stops, too, and other uses, you can't beat Unarco Steel Buildings. They're expandable, demountable—made with patented snap-in panels.

Unarco Steel Buildings are also ideal for bunk houses, utility and storage facilities, garages, roadway buildings, etc. Single or double-wall flush surfaces. Insulated, if desired. Type, number, and location of doors and windows, optional. Standard sizes to suit your requirements.

**Write for complete information**

**UNARCO STEEL BUILDINGS DIVISION** UNION ASBESTOS & RUBBER COMPANY
DEPT. A4, 332 SOUTH MICHIGAN AVE. • CHICAGO 4, ILL.

# FREIGHT CAR MASTERPIECES
## High Speed Trucks

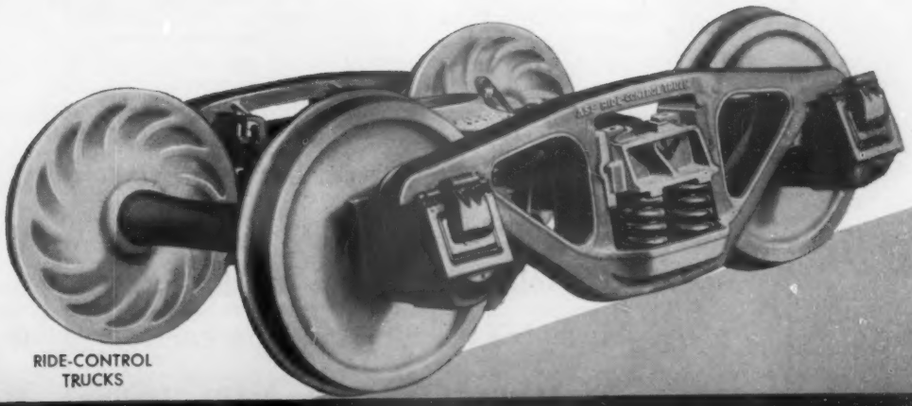


SCULLIN TRUCKS

BARBER STABILIZED TRUCKS

**SCULLIN TRUCKS**

**Truck Side Frames and Truck Bolsters Produced by Scullin Steel Co.**



RIDE-CONTROL TRUCKS

STEEL CASTINGS MANUFACTURER

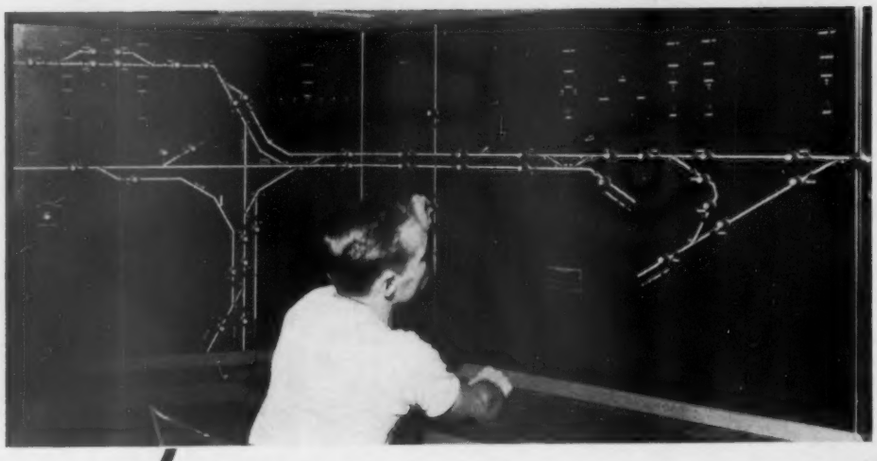
NEW YORK
CHICAGO
BALTIMORE
RICHMOND, VA.

**SCULLIN STEEL CO.**

SAINT LOUIS 10, MISSOURI

# CONSOLIDATION

## with G·R·S NX ELECTRIC INTERLOCKING HELPS COORDINATE TRAIN OPERATION






A southwestern road has improved train operation in busy territory by consolidating several interlockings in an NX machine under the control of a single operator. Many train stops and delays are now eliminated.

G-R-S NX (eNtrance-eXit) electric interlocking can help you to reach out and control scattered layouts from a central point . . . improve operating efficiency . . . reduce operating expenses.

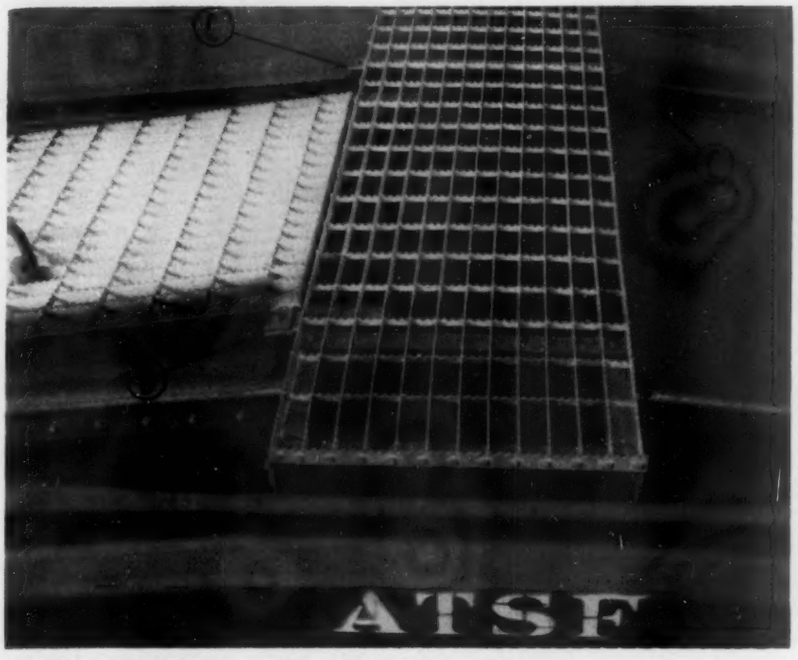
*Ask your G-R-S district office for data and estimates.*

NX

GRS GENERAL RAILWAY SIGNAL COMPANY

NEW YORK 17 CHICAGO ROCHESTER 2, N.Y. ST. LOUIS

# What's New in Products




**Cold-riveted application of Apex Tri-Lok Type A-1 running board.**

### *Apex Running Boards Applied With Rivets*

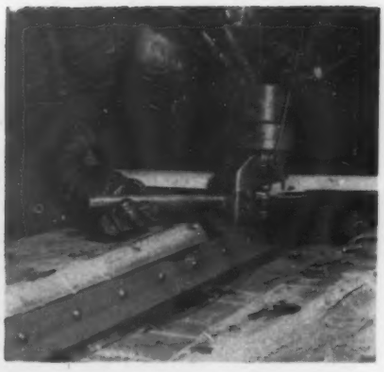
The Apex Railway Products Company, Chicago, has recently changed its recommended method of applying Tri-Lok Type A-1 metal running boards from bolted to permanent cold-riveted connections which contribute to increased safety and reduce both the material and labor cost of application. Material is also conserved by an increase from 3½ in. to 5⅞ in. in crossbar spacing which has been approved by the Association of American Railroads and helps effect a total saving, variously estimated at $6 to $9 a car.

The present running board application on the average 40-ft. car requires 48 to 50 ⅜-in. by 1⅛-in. rivets, cold driven by a Chicago Pneumatic hydraulic riveter with special yoke, instead of 64 ½-in. by 1⅛-in. carriage bolts and nuts formerly required. By eliminating loose connections as originally installed or developed in service, the use of rivets is expected to promote safer running-board conditions, reduce maintenance cost and help keep cars in service instead of on repair tracks to have loose running boards tightened.

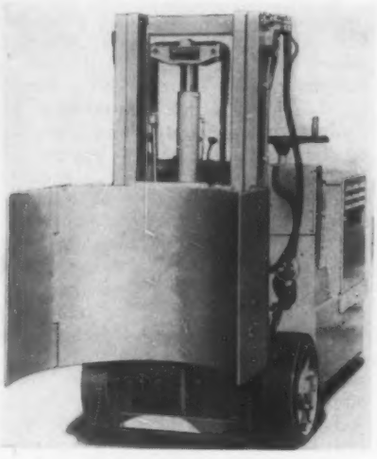
In applying Tri-Lok Type A-1 running boards by this method, the longitudinal sections have ¼-in. by 1½-in. continuous fastening bars welded to the bottom and positioned to rest on saddles extended 1 9/16 in. at each end to accommodate rivets just outside the running board. (*CC* in illustration.) Driftpin holes in the fastening bars and saddles permit lining up end holes for easy insertion of the ⅜-in. rivets which are easily driven cold by the hydraulic riveter in much less time than was required to apply bolts and tighten nuts in the restricted space underneath running boards.

Latitudinal running boards are secured at the inner end by riveting to ¼-in. by 1½-in. by 5⅞-in. bracket straps (as shown at *B*), the short bracket straps being securely welded to four of the longitudinal serrated bars. With ZU-section side plates, now increasingly used, the outer ends of latitudinal running boards are also applied with cold-driven rivets from outside the car, no backing up of rivets being necessary in the car interior, thus effecting additional labor saving. Handholds are applied to latitudinal running boards in the usual manner and in full compliance with U.S. Safety Appliance regulations.

Extended-type saddles, required with the new riveted application of Tri-Lok Type A-1 running boards, are supplied at no extra cost by the car roof manufacturer. The special yoke developed for this particular cold-riveting operation is available for use with present riveting equipment as found at most modern car-building and car repair shops•



**How rivets are driven cold by Chicago Pneumatic hydraulic riveter with special yoke for use in applying metal running boards.**



### *Paper Roll Clamp For Mercury Trucks*

A hydraulically actuated assembly for handling paper rolls and similar commodities has been announced by the Mercury Manufacturing Company, Chicago 9. The entire assembly can be installed in place of standard forks. Pressure connections to the assembly are quickly detachable and self-sealing; electrical connections are plug-and-socket type. Two bolts retain the assembly on the lifting carriage and installation or removal and replacement can be effected in 20 minutes or less.

Illustrated here is a clamp designed to handle 3,700-lb. rolls between 30 and 36 in. in diameter. Similar clamps are available up to a maximum of 5,000 lb. capacity. In operating, according to the manufacturer, horizontally disposed rolls can be picked up without need of blocking and without employing the special forward tilt range usually incorporated in a roll-handling chassis. It is possible to "break out" rolls from tightly packed

shipments by utilizing the "flipper" action of the clamp to slide them sideways. The clamping action is continuous, using the hydraulic system that includes a locking valve in the clamping cylinder and a pressure switch in the pump motor circuit•

### Air-Cooled Electric Plant

A new type of air-cooled, gasoline-powered electric generating plant has been developed by D. W. Onan & Sons Inc., Minneapolis. It has a vacuum cooling system with a centrifugal blower which draws cold air through the generator and over the engine and discharges heated air through an 8-in. by 12-in. side vent.

The units are said to be considerably smaller and lighter than water-cooled plants of the same capacity. The gasoline engines are twin-cylinder, horizontally opposed, vacuum air-cooled, 4-cycle type. They are rated 13 and 20 hp. and were developed for electric plant application. The two plants are rated respectively 5,000 and 10,000 watts.

The generators have a new type brush holder design with constant-tension, negator-type springs requiring no adjustment. The high-tension magneto ignition system permits quick manual starting without batteries or when batteries fail. The engines have stellite exhaust valves, seats, ports and guides. Oil capacity is 6 quarts. A suppression system eliminates radio interference by the electrical circuits of the engine, generator or controls. For quiet operation the engines are inclosed in steel housings•

### Now—Seamless Tubing From Stainless Steels

A new process of "hot extrusion"—exhibited for the first time by the National Tube Division of the United States Steel Corporation at Gary, Ind., has enabled the division to manufacture seamless tubing from tough stainless steels which heretofore resisted such piercing operations.

The process—named "Ugine Sejournet" after its French inventor—works very much like squeezing toothpaste out of a tube. In this case the "toothpaste" is a steel slug heated to 2,250 deg. to make it plastic. The "squeeze" is furnished by a 2,500-ton hydraulic press which forces the steel slug through a die to convert it to tubing. So great are the heat and pressure involved in the new process that glass, which is rammed into the press ahead of the steel, melts and becomes a lubricant.

Using different dies, the same press makes special steel shapes which in the past have defied all rolling methods. Output of the press is expected to approximate 2,000 tons of tubing and shapes a month•

### Pit and Subway Floodlights

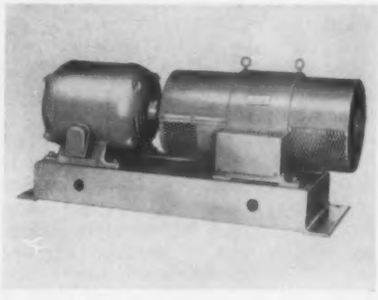
The Pyle-National Company, Chicago 51, Ill., has introduced a rectangular vaporproof floodlight, the Type 1570 Pit and Subway Light. It is designed for recessed or surface mounting in walls or ceilings of maintenance pits, underpasses, tunnels, subways, washracks and other locations subject to heavy moisture.

The reflector can be pivoted to adjust the angle of the beam 18 deg. upward or downward from center. The heat and impact resisting front glass is plain, to reduce reflection losses and make cleaning easier. Drainage slots are provided on the cover to avoid standing water. Hinged, heavy wire guards are optional•

### Silent Phone Booth

An improved doorless telephone booth, which is said to provide double the density of sound absorbing materials previously used, was announced by the Architectural Products Division of Burgess-Manning Company, Chicago.

Designated the Acousti-Booth, Scout Model, it shields the head and shoulders of a telephone user, and has been treated with additional sound absorbing material to increase its effectiveness in trapping noise that interferes with phone conversations. Loudness reduction of the new improved small Scout Model is reported to compare favorably with the loudness reduction of 50 per cent for the full-length booth•



### Continuous Generators

Continuous power generators, made by Bogue Electric Manufacturing Company, Paterson, N. J., are now available in 20 different capacities ranging from 1 kw. to 50 kw. These generators are designed to provide an uninterrupted flow of regulated electrical power for microwave relay stations, telegraph and telephone carrier and other vital communications and signaling equipment.

A continuous power generator consists of an a.c. motor direct connected to an a.c. generator and a d.c. motor. Power to the load is provided at all times by the a.c. generator normally driven by the a.c. motor which receives power from commercial sources. When this a.c. power fails, automatic control equipment disconnects the power line from the a.c. motor and connects the already rotating d.c. motor to a stand-by battery bank. This switching occurs so rapidly that the machine does not slow down appreciably and prohibits even a momentary disruption of power flow to the load. When the line power is restored, the a.c. motor is reconnected to the line.

When normal power is available, the d.c. motor may be used as a d.c. generator for maintaining the proper charge in the battery. The a.c. and d.c. outputs are regulated. When power failures in excess of battery capacity are anticipated, an auxiliary engine-driven generator may be utilized to furnish a.c. current to the a.c. motor or d.c. to the d.c. motor and the battery. An automatic timer unit starts the engine-generator after a predetermined interval of operation on battery power. The engine-generator is automatically shut off when line power is restored.

The 20 models offered by Bogue include systems for operation from single or three-phase line power delivering single or three-phase power to the load. Where extremely good voltage regulation is required, magnetic amplifier voltage regulators are furnished•


There is only one like this

## There is only one Rust-Oleum

# RUST-OLEUM®

# STOPS RUST!

*Specify Genuine Rust-Oleum*
*Accept No Substitute*

The *exclusive* Rust-Oleum formula was developed by a Master Mariner during more than 20 years of combating the terrible rust-producing conditions of the sea. It incorporates a *specially-processed* fish oil vehicle that *dries*, is *odor-free*, and is formulated in *many colors*. It may be applied directly over *sound rusted surfaces* after scraping and wirebrushing to remove rust scale and loose particles. See why nearly every type of industry in the world has relied upon Rust-Oleum for over a *quarter century*. Clip the coupon to your letterhead and mail today.

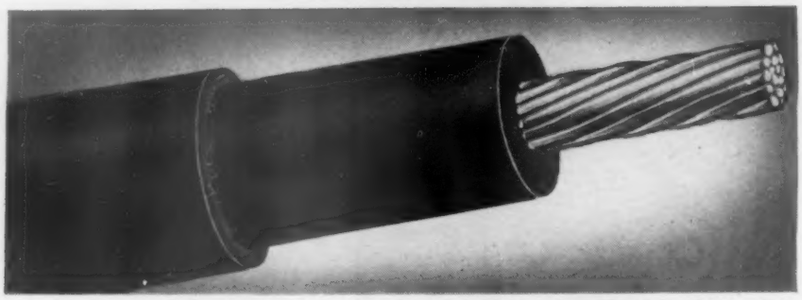
RUST-OLEUM CORPORATION
2597 Oakton Street, Evanston, Illinois

Rust-Oleum Corporation
2597 Oakton Street, Evanston, Illinois
Gentlemen: I am interested in the *complete* Rust-Oleum story. Please send me the facts and the name of my nearest Rust-Oleum **Railroad Rust Prevention Specialist**

Name_____
Address_____
City_____ State_____

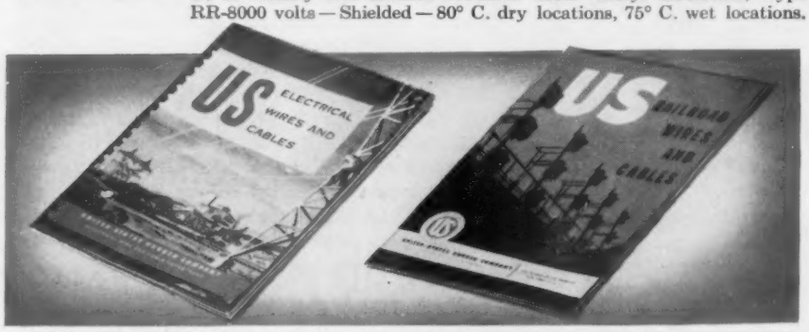
*For steady power distribution and general-purpose wiring railroads depend on*

# U. S. Grizzly® Butyl Insulated Cable



U. S. Grizzly non-metallic sheathed cable—Butyl insulation, Type RR-600 volts—80° C. dry locations, 75° C. wet locations.

U. S. Grizzly non-metallic sheathed cable—Butyl insulation, Type RR-8000 volts—Shielded—80° C. dry locations, 75° C. wet locations.




Write to address below for your free copies of General Catalog of U. S. Electrical Wires and Cables, plus booklet on Wires and Cables for the Railroad Industry.

United States Rubber Company is the only wire and cable manufacturer to grow its own natural rubber and to make its own synthetic rubber and its own plastics. That's why "U. S." is unexcelled at making wire and cable with superior insulation . . . using careful control at every step of the growth and manufacture. "U. S." makes all AAR *standard* types of electrical wires and cables, as well as *to your own specifications*. The line includes:

Royal Portable Cords and Cables • Signal and Communication Cables • Railroad Utility Cable • Track and Car Wire • Welding Cable • Twisted Pair Drop Wire • Locomotive Headlight and Train-Control Wire.

## UNITED STATES RUBBER COMPANY

**Electrical Wire and Cable Department**

ROCKEFELLER CENTER • NEW YORK 20, NEW YORK

U.S.RUBBER
SERVING THROUGH SCIENCE

# Benchmarks and Yardsticks

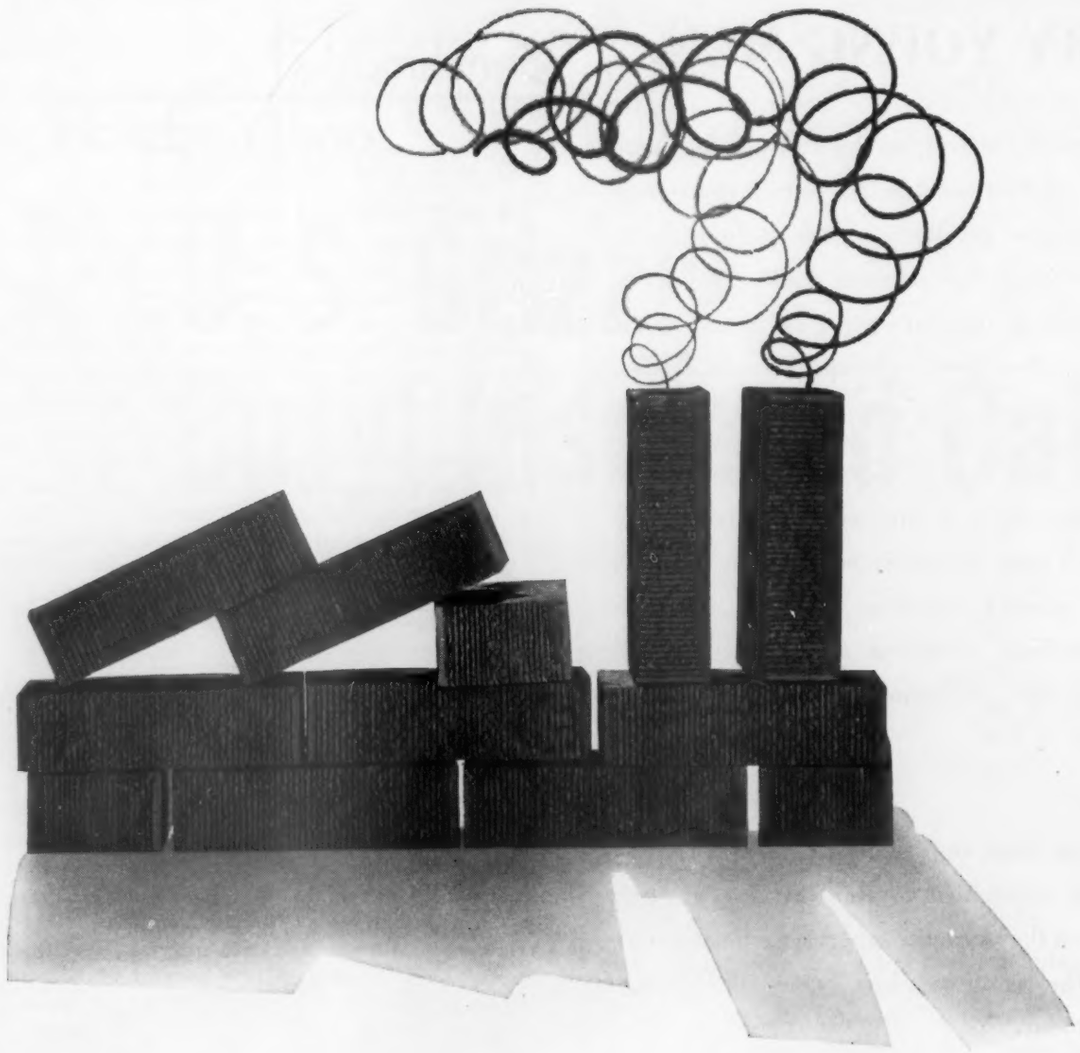
**A BUSINESS** or a profession—or, for that matter, a nation—progresses not merely because it has effective leadership, but equally through intelligent followership. Almost everybody is more highly skilled at *something* than his neighbors are and maximum progress occurs when, in every activity, the people with less skill willingly subordinate themselves to the initiative of those with more.

**For instance,** at the scene of an accident a competent wreckmaster can usually pick things up faster than the general manager can—the proper function of the general manager in such a place being to issue the orders the wreckmaster can't. There is nothing undemocratic or degrading about subordination, where based on recognition of genuine superiority. Nobody loses stature, but gains it, by putting himself forward only in those endeavors where his knowledge and aptitude make him pre-eminent. Practically everybody, the "big shots" as well as the little ones, has only one or two angles in which he really excels—in everything else he belongs to the rank-and-file. Things go better for everybody when the followers show as much zest for following as the leaders do for leading.

**The Spanish essayist** and philosopher, Ortega, criticizes his fellow-countrymen for being poor followers—slow to recognize and support leaders of outstanding merit. A people with no disposition to distinguish the mediocre from the excellent is likely to produce comparatively few leaders, and the country as a whole will be slow to progress. The relatively modest showing that Spain has made in the past few centuries, compared to other European nations, Ortega ascribes to this national characteristic. Whether his strictures on his compatriots are merited or not, his point about the importance of followership, as the other side of effective leadership, is well taken.

**A leader** can probably best promote followership among his subordinates by himself showing enthusiasm as a follower in those activities where he has no special qualifications. A boss gains in stature and standing by clearly demonstrating his respect for the superior performance of subordinates at tasks in which they are more apt than he could hope to be. The success of safety work under diffusion of responsibility 'way down the line is one of the best proofs of the soundness of this doctrine. By recognizing initiative in others at the level of specialized skills, the manager shows the qualifications which justify *his own* leadership in the even more highly skilled job of combining subordinate skills into an effective total result.

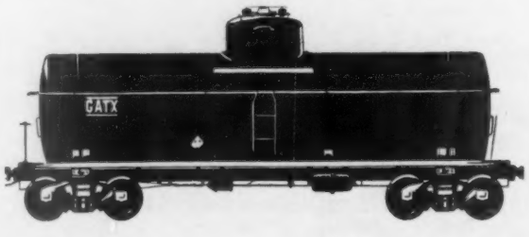
J.G.L.



**BEFORE YOU START** *laying bricks for your new plant,*

*see General American about GATX cars*

*to carry your bulk liquids*




For dependability, the 46,000 tank cars in the GATX fleet are designed, built and operated by General American

GATX GENERAL AMERICAN TRADE MARK

**GENERAL AMERICAN TRANSPORTATION CORPORATION**

*135 South La Salle Street · Chicago 90, Illinois*
*Offices in all principal cities*

# Improving the Railroads' Credit

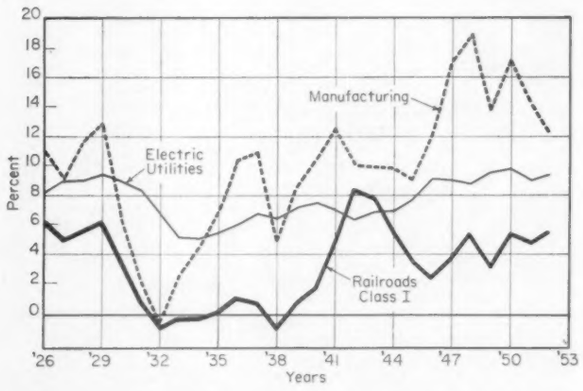
Among the most interesting and significant of all indices reflecting business developments and trends in this country is the annual compilation by the National City Bank of New York of the comparative earnings of some 70 major industries. This compilation of 1952 performance reveals that the railroads earned 5.5 per cent on their "net assets" (i.e., on the "book value" of the equity after deduction of interest on indebtedness). As the bank points out, the "book value" of the equity investment in industry is far less than the present-day value of the property.

The railroads' 1952 earnings of 5.5 per cent compare with 4.8 per cent earned by them in 1951—but the industry still stands near the bottom of the list in relative earnings. Only the traction and bus lines, cotton and woolen textiles, and meat packing earned a lower rate of return in 1952. The electric utilities earned 9.3 per cent and the manufacturing industry as a whole, 12.3 per cent—or more than twice as much on their equity as the railroads did. Air transportation earned 15.6 per cent and shipping 10.1 per cent.

### *Supply Business No Gold Mine Either*

The railway equipment industry earned 8.9 per cent—which, it will be noted, while considerably better than the railroads' showing, was also much less than that of the manufacturing industry as a whole, and was less than the 9.7 per cent earned by the equipment manufacturers in 1951. The automotive industry earned 18.5 per cent, aircraft manufacturers 17.6 per cent, and shipbuilding 10.8 per cent. Thus it appears that the rewards for supplying the railroads are less than those held out to suppliers of other agencies.

There aren't any individual railroads, of course, which are "average." A lot of them did better than the average and many of them not so well. In other words, while the overall performance of the industry has not been spectacular, it still is possible for many individual companies to do relatively well. So-called "triple-A" railroad bonds have crept up in price until, on the average, the interest on them is as low or lower than on utility bonds of equal grade. Consequently, it isn't the condition of the strongest companies that gives occasion for concern, but, rather, the fact that so many companies are a long way removed from a strong position. Most of these companies which are not doing so well financially are just as necessary to the commerce and defense of the nation as the strongest companies are.




**COMPARATIVE EARNINGS of the railroads, the electric utilities and manufacturing in per cent of net assets, 1926-52.**

Data provided by courtesy of the National City Bank of New York—I.C.C. original source of railroad figures and Edison Electric Institute of those on electric utilities.

Quite likely there are companies which would have a better credit rating than they have, if they would provide more information about themselves to the large investors who establish the market. This point was emphasized recently by David A. Hill, well-known specialist in railroad security analysis, in a talk to a railroad management class at Northwestern University in Chicago.

Mr. Hill pointed out that many railroad financial officers are so thoroughly informed on the values of their own securities that they sometimes fail to realize that the financial community is not equally well informed. "Too often," he said, "these officers take for granted that the insurance companies, underwriters and other institutional buyers know all about their good railroad." Often, he added, this conviction is in error, and most railroads which take the trouble to get adequate information to investment leaders find their effort well repaid.

As an example, he told how the Western Pacific in 1950 sold 30-year 3⅛ per cent bonds at close to par. The price was favorable beyond all anticipation because, according to Mr. Hill, President Whitman spent months in preparation.

Where he had to learn about the requirements of the institutional bond market, he made inquiries. He not only called on underwriters; he called on the prospective buyers themselves. He visited insurance companies everywhere—in the Midwest, as well as in the East. He did not neglect the rating agencies. The result was a two-way educational process. Mr. Whitman learned about investment requirements; those he called upon learned about the Western Pacific. The road also ran a special train over its lines for investors, to enable them to inform themselves at first hand.

Mr. Hill went on to mention the unusual and favorable sinking fund provisions in a bond issue of the Gulf, Mobile & Ohio sold in 1948, and in financing by the Chicago Great Western for which Interstate Commerce Commission approval is now being sought. In both arrangements, these provisions spread maturity burdens to the advantage of the roads' heavy modernization programs and, at the same time, extinguish debt at a rate which makes the bonds a more desirable purchase. These provisions were largely the result of careful exploratory talks with investment analysts and buyers, which resulted in interchange of ideas.

### *Higher Average Earnings Needed*

The railroads, as a whole, need much higher average earnings in order for the great bulk of their securities to command the respect of investors—which is indispensable for continued improvement in railroad facilities and service. No likely means for securing better average earnings should be neglected. Meantime, however, getting full information on potentially attractive offerings to the investment community is equally essential—because, in spite of relatively unattractive "average" conditions, there are many companies which are a lot better than "average", as are many selected securities, even of those companies which are not conspicuously prosperous.

---

# Why Transportation Is "Compartmentized"

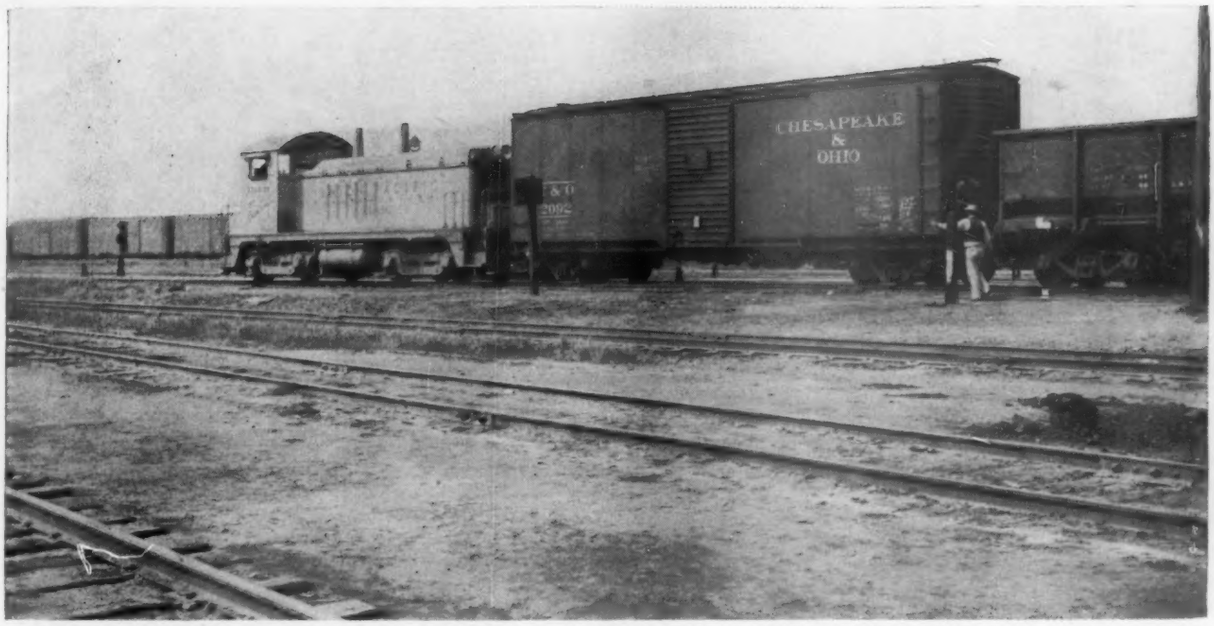
The railroads have had very little to say in recent years about one of the most important of all proposed reforms in government restrictions on freedom in the transportation business. This soft-pedaled reform is the proposal that the railroads be given just as complete freedom as others have to utilize newer transportation tools—i.e., trucks, barges and planes.

The reason why so little has recently been said about this proposal is, doubtless, that there are other items on the agenda which appear to be of greater importance from a practical standpoint; and, also, because organized opposition to this particular reform would probably be excessive. Nevertheless, it is logically impossible for anyone to be a sincere advocate of economic freedom and still insist on the retention of the purely arbitrary limitations which have been placed by law and regulation on railroad use of tools other than "the flanged wheel on the steel rail" for providing transportation service. It is timely, therefore, that this particular proposal has been taken out from under its wraps by President Arthur Grotz of the Western Maryland in his recent address to the Allegheny Regional Advisory Board. Mr. Grotz said:

"It is a curious miscarriage of regulation dedicated to the free enterprise system that, in effect, denies a company, which has for 50 or 100 years faithfully and well served an industry, the right to continue to serve it because a convenient transportation tool—be it ownership of trailers or whatever—may under application of the regulation be furnished only by a newcomer. I feel strongly that, within the field of transportation and subject to regulation in the public interest, any company should be permitted to serve its past and prospective customers with whatever equipment will best meet their needs. This flexibility, which is so characteristic of American business, would be wholesome to the whole fabric of commerce."

Nobody can refute the logic of that statement. All that can be truthfully said against it is something like this: "We want the railroads shackled and prevented from the unrestricted use of barges, trucks and planes because, if they were permitted to give a coordinated service, there is grave danger that such service would be preferred by the shipping public to the compartmentized variety of service they now get from rigidly separated transportation agencies."

Granting that there are other aspects of government interference in transportation which are of greater immediate importance than the existing limitations on "department store" transportation, there is certainly every reason why this one should at least be kept alive by constant discussion. If other industries were treated the way the railroads are, Studebaker would still be making farm wagons and little else. In the cities, there'd be mighty few buses replacing street cars. There would be no connection between the electric and gas utilities. Such compartmentization would be ruinous for these other industries, and a needless inconvenience to their customers. Its effects are just as harmful in transportation




**MELPAR'S OPERATIONS RESEARCH STAFF believes it can help railroads determine the extent of the yard facilities which must be supplied to handle a given volume of cars in the most economical manner.**

## HIGH-LEVEL RAILROAD COOPERATION, PLUS . . .

# Operations Research Methods

## . . . EQUAL MORE EFFICIENT RAILROADING

**How the Westinghouse Air Brake Company plans to apply the new science of Operations Research to develop better procedures and equipment for railroads**

Through its recently acquired subsidiary, Melpar, Inc.,* situated in Alexandria, Va., Westinghouse Air Brake Company is applying to railroading the relatively new technique called Operations Research. This program has been undertaken to get a deeper overall understanding of the basic structure and dynamics of large-scale railroad operations (flow of main-line traffic, maintenance of rolling stock, terminal operations, etc.), the causal factors involved, and the quantitative laws which these operations obey. In this way, the parent company's executives believe that its Operations Research group can be of assistance to the railroads in finding practical solutions to many of the difficulties which face the industry.

Operations research may be defined as a scientific method for furnishing executives a *quantitative basis* for making decisions concerning operations they supervise. During World War II, small mixed teams of scientists earned a place on the staffs of military commanders when they demonstrated that they could produce valuable *aids to command decision* in the form of quantitative results that reduced the areas of uncertainty in selecting the best operational procedures. For instance, operations researchers were able to determine how much of the total available aircraft effort should be devoted to bombing submarine bases and how much to the attack of submarines in the open ocean, to get the maximum overall effect.

Since the war an increasing number of applications of operations research have been made to industrial processes. In Great Britain, the method is being applied intensively to railroad operations. Also, there is at least one application to railroads in the United States. (*Railway Age*, June 9, 1952, p. 61.) This application to an accounting operation was made by the Chesapeake & Ohio.

In pointing out the logical basis of operations research, Dr. Glen D. Camp, director of operations research at Melpar, says that operations (1) have a structure, (2) proceed in accordance with determinable causal factors, and (3) obey determinable quantitative laws. Thus, operations are susceptible to effective scientific study. Furthermore, knowledge gained by the application of such study to one area of human activity is often transferable to quite different areas, because the

*Melpar is also organizing and administering the new Westinghouse Air Brake Company Central Research and Development Laboratory. Development of new railroad equipment by this laboratory will be guided by the Melpar Operations Research group.


**DISTRIBUTION OF EMPTY FREIGHT CARS is a phase of railroading in which operations research techniques, coupled with electronic devices, may be used to bring economies for the carriers.**

corresponding operations frequently display great similarity of structure and obey similar quantitative laws. For example, solutions similar in nature may be worked out in scheduling of series or parallel events, where the events are partially or wholly controllable, and where the effectiveness of the operation depends upon the choice of the scheduling. Examples of such operations include series-parallel production lines, trains entering or leaving a terminal over a limited number of tracks, etc.

Of course, operations researchers state, actual operations seldom or never fall exactly into one "pure" class, but usually possess some of the attributes of several classes. Nevertheless, a clear understanding of these special and relatively simple classes of operations is a great aid toward understanding the more

**WESTINGHOUSE AIR BRAKE COMPANY officers hope the work of its operations research group may lead to development of new devices which help the railroads improve their service and cut their costs of operation.**

complex real operations. Just as one frequently resorts to idealized models as a preliminary step to the understanding of complex physical systems, so also is it possible to use the same kind of approach in understanding complicated operations. Illustrations of this approach are presented in the succeeding pages in the form of simplified examples of the methods used in attacking two acute railroad problems: (1) the most economical capacity at which to operate a classification yard which receives a specified average number of cars per day; and (2) the economical distribution, on any one railroad, of empty freight cars.

Westinghouse Air Brake does not expect any financial support from the carriers in this work. The company does hope that railroad executives will cooperate with its program by making available to the operations research group their knowledge and experience. Since Melpar's staff has been drawn primarily from personnel who worked on highly secret government projects, confidential material turned over to it will be adequately guarded. Furthermore, from its very nature, operations research is a staff function, and is not intended to—and will not—supplant the decision-making function of the executive. Hence, an "O.R." program, if it is to be at all effective, must have backing from the very highest executive level.

---

OPERATIONS RESEARCH IN . . .

# Distributing Empty Cars

**How the technique can furnish the basic formulas for determining the most economical procedure—Electronic computers can rapidly obtain quantitative answers from these formulas**

The effective distribution of empty freight cars is a nationwide problem, and is one part of the larger task of the effective utilization of freight cars. Car distribution is very complex, yet it is analogous to—and perhaps not as complex as—"programming" difficulties which are now being attacked with a great degree of success by Operations Research. That's the considered opinion of members of the group recently formed at Melpar by Westinghouse Air Brake Company (see preceding article).

For example, they say, consider the job of supplying an advanced Air Force base with bomber crews, maintenance and other personnel; with planes, repair facilities, spare parts, fuel, etc. All of these should arrive in balanced quantities so assigned missions can be carried out effectively and economically. Here multidimensional unbalances are possible: e.g., some classes of personnel may be overworked while make-work devices may have to be invented for others; or, planes may be grounded for want of parts, fuel or ammunition. Operations research has been effective in helping the Air Force work out the proper and timely distribution program.

As another general example, an industry needs to know the optimal distribution of assembly plants or warehouses, and must schedule the arrival of raw or semifinished materials for production and assembly so as to minimize cost. All of these programming tasks are similar in that they require the determination of an optimal distribution. Hence, they are said to be *homomorphic*. The great importance of this is that knowledge gained in one area may be applicable to other areas. Thus solutions to the above-mentioned problems may be applied to the distribution of freight cars, the operations research men say.

Excesses or deficiencies of empties on a single large railroad can be considered on a station, divisional, or regional basis. The optimal method will depend upon the size of the road and other factors, Melpar's researchers say. In handling distribution within a region, for example, they suggest that the division car distributor handle his own distribution problems as well as possible with his local car supply, reporting his *net* excess or deficiency to the regional car distributor. Then, on division No. 1 for instance, $E_1$ (E=empties) expresses (algebraically) the net excess of empties of a specified type on the division at a particular time. If $E_1$ is positive, then there is an actual excess or car surplus on division No. 1, whereas if $E_1$ is negative, there is a deficiency or car shortage. On division No. 2 the excess, if any, would be $E_2$, and so on, to the limit of the number of divisions in the region.

### *Distribution Computation*

The distribution problem can now be stated very simply, even though its solution is not so simple: What is the optimal set of movement orders $M_{ij}$, in which $M_{ij}$ is the number of empties of the speci-

fied type which are ordered to be moved from one division to another? The optimal set of movement orders is that set which makes the total cost of the required movement a minimum, subject to any "side conditions" imposed by practical considerations. Two distinct cases are immediately recognized: first, if the algebraic sum $E_1 + E_2$, etc., is positive, there is a net *excess* of empties in the region and hence the optimal set of movement orders must allow for getting rid of as many foreign cars as possible; second, if $E_1 + E_2$, etc., is negative, there is a net *deficiency* of empties, and empties must be obtained from neighboring lines or another part of the home railroad, or else some shippers' needs cannot be satisfied.

Space limitations require that any example of optimal car distribution given here be simple, even though operations research methods are capable of dealing effectively with the more complex situations. Therefore, suppose that the regional car distributor must send empties from three divisions, on which car surpluses are predicted, to five other divisions on which shortages are expected. Further, only for illustrative purposes, the total shortage exactly equals the total surplus, or the algebraic sum $E_1 + E_2$, etc., is zero, and no foreign cars are involved.

The conditions of the example can be expressed most conveniently in the form of a matrix as follows:

| | | Destinations (Divisions) | | | | | |
|---|---|---|---|---|---|---|---|
| | | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $D_5$ | Surpluses |
| Origins (Divisions) | $S_1$ | | | | | | 9 |
| | $S_2$ | | | | | | 4 |
| | $S_3$ | | | | | | 8 |
| | Shortages | 3 | 5 | 4 | 6 | 3 | 21 |

This matrix can be readily interpreted as follows: Divisions $S_1$, $S_2$ and $S_3$ (S for "surplus") have surpluses of nine, four and eight empties, respectively. These 21 empties must be distributed among the five divisions $D_1$ to $D_5$ (D for "deficiency") at minimum cost, and in such a way that, for example, destination $D_1$ will receive three of the empties to take care of the deficiency expected there, $D_2$ will receive five, etc.

The cost to send a car from an origin to a destination can also be expressed in matrix form and, for purely illustrative purposes is here taken to be as follows:

| | | Destinations | | | | |
|---|---|---|---|---|---|---|
| | | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $D_5$ |
| Origins | $S_1$ | $ 10 | 20 | 5 | 9 | 10 |
| | $S_2$ | 2 | 10 | 8 | 30 | 6 |
| | $S_3$ | 1 | 20 | 7 | 10 | 4 |

The numbers in the matrix are the dollar costs of moving one empty from the indicated origin to the indicated destination. For example, it costs $10 to send one empty from origin $S_1$ to destination $D_1$, $20 from $S_1$ to $D_2$, and so on.

The optimal set of movement orders which makes the movement cost a minimum can then be shown to be:

| | | Destinations | | | | | |
|---|---|---|---|---|---|---|---|
| | | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $D_5$ | Surpluses |
| Origins | $S_1$ | 0 | 0 | 4 | 5 | 0 | 9 |
| | $S_2$ | 0 | 4 | 0 | 0 | 0 | 4 |
| | $S_3$ | 3 | 1 | 0 | 1 | 3 | 8 |
| | Shortages | 3 | 5 | 4 | 6 | 3 | 21 |

This means that of the nine surplus empties expected at origin $S_1$, four shall be sent to destination $D_3$, and five to destination $D_4$, etc. The reasonableness of this movement order is intuitively evident by inspection. It will be noticed that all cars required at destination $D_1$ should be sent from origin $S_3$, a result which is certainly in intuitive agreement with the cost table. In fact, consideration of the remainder of the movement orders will show the *most* of the cars arriving at destinations will come from origins from which the transport cost is least.

### *Determination of Total Cost*

The total cost of the movement can be computed readily by multiplying the appropriate unit costs in the cost matrix above by the number of cars involved in each particular movement. This cost is $150, and no other set of movement orders will yield a lower total cost. In fact, if one attempts to guess the optimal solution by "common sense" methods, even in this simple 3-by-5 problem, the cost corresponding to this "solution" will usually be significantly higher.

The time and work required to obtain the minimum cost solution for a problem with more origins and destinations, and with "side conditions" of the sort discussed at the beginning of this article, would be excessive if done by hand. However, electronic computing machines for such problems already exist and are in effective operation, Melpar spokesmen state. These machines can reduce the computation time from a matter of weeks or months to a matter of minutes.

It is realized by the research men at Melpar that frequency of train service, special car orders, and many other factors may make any such ideal solution as this impractical. Neither "O.R." nor anything else, the operations researcher says, will ever remove the necessity for management decisions. Their aim is not to *replace* management, nor to make it the slave of a machine; instead, they offer quantitative *aids* to such decisions. Thus, they visualize the car distributor rapidly solving *several* problems, each based on different "side conditions," and then selecting the one considered to be most appropriate to the actual circumstances.

OPERATIONS RESEARCH CAN FIND . . .

# Efficient Yard Capacity

**Determining optimal capacity of a yard gives executives information necessary to decide on the nature—and extent—of improvements that may be economically justified with conditions prevailing**

Available statistics indicate that freight cars spend about 85 per cent of their time standing still, and much of this non-productive time is spent in classification yards. Yard enlargement and redesign, hump and retarder installations, improved communications facilities and inspection procedures all have been directed toward speeding up the classification process. But, in any particular case, how much effort and funds should be expended to reduce car waiting time and the consequent delay cost? The behavior of "queues" or lines of cars awaiting classification, together with yard operating costs, are used by the Melpar operations research scientists to give the following answer to this question:

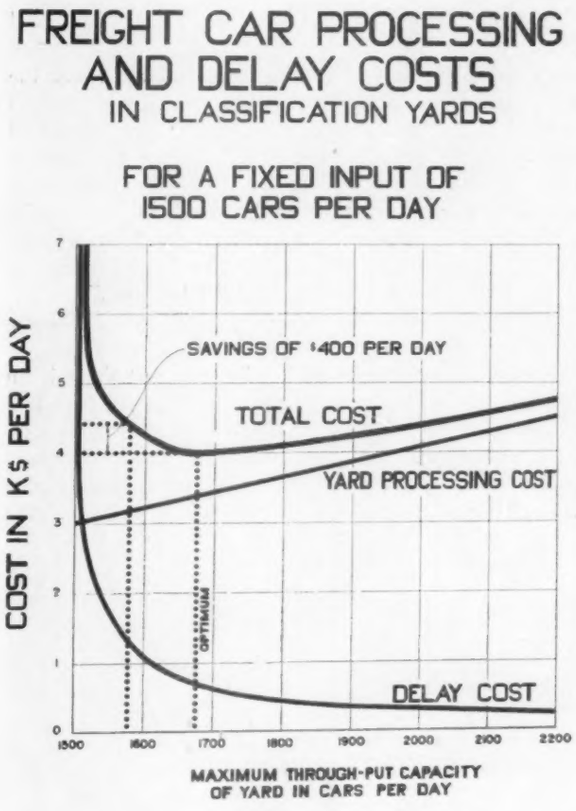
### *Capacity Controls Cost*

This example will consider the overall yard operation in which the cars in arriving trains are sorted onto the proper outgoing tracks, including necessary inspection and paper work as a part of the routine. Except for the occasional car held back for routing instructions or other special handling, delay cost depends upon the *capacity* of the yard to handle the incoming traffic. If the yard has a very high capacity, car processing commences promptly on arrival, and the waiting time in the receiving yard will be small. On the other hand, if yard capacity is at the bare minimum necessary to prevent arriving trains from filling the receiving yard and overflowing back onto the main line, cars will wait a long time before being classified. It is apparent, therefore, that excess yard capacity reduces delay cost, but of course it increases yard processing cost. On the other hand, minimal capacity reduces yard processing cost but increases delay cost.

The overall problem, then, is to find the right compromise between the two extremes. For any given average volume of car arrivals there is one optimal yard capacity for which the combined total of delay cost and yard operating cost is lowest.

In the case of an interchange yard, the situation is complicated by the fact that delay costs affect the railroads using the yard whereas yard operating cost affects the yard itself. To avoid this complication in the present purely illustrative example, therefore, the yard will be assumed to be owned and operated by one railroad so that one organization pays all costs, and gets all benefits from increased effectiveness.

Determination of the optimal yard capacity is a difficult mathematical problem involving the theories of probability and queueing. However, by the application of "O.R." methods developed in connection with seaport congestion*, which in turn are based on earlier work on telephone trunk lines, certain basic solutions have been derived which are applicable to a wide variety of "queueing" situations. The great practicality of this approach is being increasingly realized, as attested by its recent application to production lines, and to bad-weather "stacking" over airports.




This example will consider only one yard operation, classifying cars. Repairs of bad order cars, make-up and scheduling of outgoing trains, and other operations are excluded for simplification, although these factors certainly would require consideration in an actual case. Freight trains arrive at this hypothetical classification yard at random times at a rate of about 25 trains per day with an average of 60 cars each, giving an average arrival or "input" rate of 1,500 cars per day.

The capacity of this yard, which must be greater than

*Seaport Operations as a Stochastic Process—J. L. Everett, *Journal of Operations Research Society of America*, Vol. 1, No. 2, p. 76, February 1953.

1,500 cars per day, depends upon crews and switch-engines assigned, equipment, etc. The daily cost of providing any specified capacity, as assumed in this case, is indicated by the line labeled "Yard Processing Cost" in the accompanying diagram.

The delay cost depends upon what value is assumed for the freight car-day. However, differences in this value do not affect the generality of the basic method. Therefore, in order to get a definite and conservative figure the per diem amount of $2.00 has been used. The total car delay cost is represented then by the value, at $2.00 per day, of the average number of cars awaiting classification.

It is intuitively obvious that the greater the yard capacity in relation to the average rate of train arrival, the shorter the line of waiting cars and the lower the delay cost. However, the value of the operations research method is that it not only shows the general nature of this queueing behavior but also indicates the average number of cars expected to be waiting for any given capacity. For the simple yard considered here, with an input of 25 60-car trains per day, the delay cost for different values of the yard capacity is shown in the figure by the lower curve, labeled "Delay Cost."

The total combined cost of yard operation and car delay for various capacities is shown in the figure by the upper curve. It can readily be seen that there is an optimal yard capacity at which this combined cost is a minimum. This point on the curve is at a yard capacity of 1,675 cars per day, or 175 cars more than the average arrival rate. Here the total delay and operating cost, in accordance with previous assumptions, is approximately $4,000 per day, and this total cost will increase with any change in the yard capacity in either direction.

This figure shows that if the yard is operated at a capacity above the optimal capacity, there is indeed a reduction in delay cost, but not enough to compensate for the increased yard cost. Conversely, if operated below the optimal capacity, yard cost is reduced but not enough to compensate for the resultant increase in delay cost.

The importance of finding the optimal yard capacity is illustrated by the dotted lines in the figure: if the yard capacity is 1,575 cars per day, only 100 cars per day below the optimal capacity, the total cost is increased by the significant amount of $400 per day.

If the value of the car-day is taken to be more than the $2.00 per diem charge assumed in this case, the optimal yard capacity is increased. Also, the penalty arising from any departure from the optimal yard capacity will be greater.

In summary, a definite and generally applicable method is available which permits the quantitative determination of the optimal yard capacity. Comparison of the actual yard capacity with the optimal capacity will show whether the former is too small or too large, and will permit the rational evaluation of proposed additions and improvements of equipment and methods in the light of the proper objective, viz., minimizing the overall cost of the operation. Needless to say, the specific example here presented will not be applicable to any particular yard, but the general method together with cost and operational data specific to a particular yard will yield the desired optimal result.

## WITH THIS WINCHARGER . . .

# No Line Wires

In connection with the automatic interlocking at Goodwine, Ill., on the Chicago & Eastern Illinois there are two "Winchargers" for charging, by wind power, the storage batteries at the northward and southward approach signals. This installation, with other features of the interlocking design, made it possible to eliminate all the line wires in connection with the project. This not only saved money but eliminated sleet and wind damage.

The Goodwine interlocking controls the intersection of the road's main line and Cissna Park branch. The wires to the home signals are underground. The approach signals on the branch are fixed, requiring no line wires.

By a special track circuit, all controls between the home and main-line approach signals are taken through the rails. This track circuit is of the coded type which consists of a pulsating current that picks up relays at each end. Normally the pulsating current in the track circuit travels from the approach signal to the home signal, through the rails, and picks up the approach control relay at the crossing. When a train reaches a point about a mile in advance of the approach signal, the control relay is de-energized. Immediately the controls are reversed, and the current in the track circuit between the home and approach signals is fed from the home signal to the approach signal, and allows the approach signal to indicate the position of the home signal.

This track circuit eliminated four of the six line wires normally required. The other two would be required for a power line to charge the storage batteries for operating the signals, which function the Winchargers perform.

HOW THE SANTA FE IS

# Reflectorizing Roadway Signs

**For better visibility at night all the permanent and temporary speed-control signs on this railroad are being treated with reflective sheeting**

A program for reflectorizing all the speed-control signs along its right of way is now in full swing on the Atchison, Topeka & Santa Fe. With increased safety as the objective, the program has already resulted in reflectorization of all the road's 4,800 permanent speed-control signs. More than 80 per cent of its temporary "slow" and "resume-speed" signs have also been reflectorized, as well as many yard limit, railroad crossing, railroad junction, full-stop, and multiple-track signs.

### *Reflective Sheeting Used*

Sign reflectorization on the Santa Fe is based on the use of "Scotchlite" reflective sheeting—a material which makes possible overall reflectorization of each sign. The surface of each of the new signs is completely covered with reflective sheeting, thus making the signs visible at night at distances up to a quarter of a mile or more. When picked up by headlights, the signs are said to reflect brilliantly in true color—up to 220 times as bright as white paint.

Another point behind the decision to undertake the program is the expected service life of the signs. Although a little more than a year's time in actual service has not been sufficient to establish the service life under all conditions encountered, tests conducted since 1949 by the railroad, and for an even longer period by the manufacturer of the reflective sheeting, indicate they will outlast two paint jobs on the wood signs which were previously used. This means a total service life of around six years.

What makes the Santa Fe program particularly interesting is that it makes full use of existing painted signs, adding reflectorization to the old ones rather than replacing them with completely new reflective signs. This factor alone has cut the cost of the program considerably. Moreover, in carrying out its sign program the road is capitalizing on the characteristics of the material that lend themselves to efficient mass production.

Permanent speed-control signs previously consisted of a painted wood surface, 16 in. by 36 in. Moisture and weathering caused the paint surfaces to deteriorate so that they had to be repainted about every 36 months to assure night-time visibility. The temporary signs were of painted metal 18 in. in diameter. Again the problem was night-time visibility.

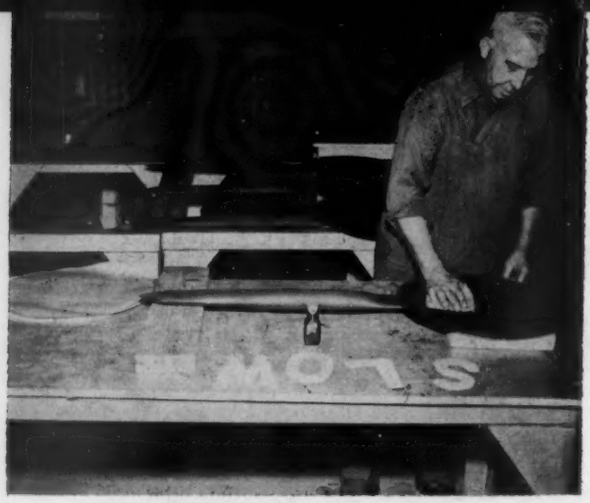

**REFLECTORIZED MATERIAL used on Santa Fe speed-control signs is said to be up to 220 times as bright as white paint.**

As a result, a new method of reflectorizing the wood signs was developed by the Santa Fe in conjunction with the Minnesota Mining & Manufacturing Co., manufacturer of "Scotchlite" reflective sheeting. Called the metal overlay method, this procedure consists basically of bonding the reflective sheeting to a relatively thin metal blank, then fastening it directly over the surface of the old sign.

For carrying out its sign program the Santa Fe opened a new sign shop at Albuquerque, N.M., in July 1951, which makes reflective signs for the entire system. Both because of the nature of the reflective sheeting used and because of the carefully planned organization of the Albuquerque sign shop, high production of reflectorized signs has been achieved with minimum effort and cost.

In making the permanent "slow" and "resume-speed" signs the metal blanks for 16-in. by 36-in. overlays

**1** **CASTERED WORK TABLES** in the Santa Fe's new system sign shop at Albuquerque promote flexibility in fabricating the reflective signs. Degreasing unit is in the background.



**2** **AFTER DEGREASING** the temporary signs are spray-painted to provide a protective coating. Here a signman is wiping the painted surface of a sign prior to application of the reflective sheeting.

**3** **POSITIONING LETTERS** on the disc of reflective sheeting placed on the metal blank is guided by a metal template. A small horseshoe magnet holds template in position.

**4** **A SPECIAL ACTIVATOR** is used to tack in place temporarily both the letters and the reflective sheeting. Metal template is being removed after letters are properly applied.

**5** **VACUUM APPLICATOR** takes temporary "slow" and "resume-speed" signs—posts and all. Bonding of letters to sheeting and sheeting to blank occurs simultaneously.

**6** **COMPLETED SIGNS** (foreground) are prepared for shipment (right) after man at left removes white liner from the letters. Temporary "slow" and "resume speed" signs are wrapped in pairs.

are first sheared to size in the metalworking shop from sheets of 36-in. by 128-in. 20- or 22-gage bonderized steel. The metalworkers also punch eight holes around the edge of each blank for mounting screws. Shearing and punching are used—rather than sawing or drilling—since this method tends to pull the protective zinc coating over the cut edges, providing better protection from rust.

Next the blanks are degreased to remove foreign particles and film on the surface of the metal. An electric hoist lowers the metal blanks on racks into the trichloroethylene solution in a Blakeslee degreaser unit which is capable of degreasing several hundred blanks in a few hours.

In preparation for applying the sheeting the protective backing is stripped from it and laid aside, but not discarded. The sheeting for each sign—yellow for speed-limit signs—is then positioned on one of the metal blanks and tacked in two places, using A-2 activator to hold it temporarily while the lettering is applied.

### *Precut Numerals Used*

For lettering reflective sheeting signs, the Santa Fe is using already cut-out numerals made from "Scotchcal" film. Supplied by the manufacturer of the sheeting, these are a black, non-reflective plastic film that is gasoline resistant and can be bonded to the sheeting just as the sheeting is bonded to the metal. The precut numerals are 10¼ in. high, with a 1⅝ in.-wide stroke. A white disposable liner covers the face of the plastic film, making the numerals stiffer and easier to handle.

Two sets of numerals go on each speed-limit sign—one set for passenger train speeds and the other for freights. (Where allowable passenger and freight speeds are the same only one set of numerals is required.) These are positioned on the yellow reflective background by use of a metal template designed on the Santa Fe.

The template is then removed and the metal blank—complete with the reflective sheeting and the numerals tacked in place—is put into a vacuum applicator for bonding. Nine of the 16-in. by 36-in. permanent sign panels go into the 5-ft. by 12-ft. "bulletin" applicator at a time.

The vacuum applicator—specifically designed for bonding the reflective sheeting to the back-up panels—employs atmospheric pressure on a top and a bottom rubber diaphragm which presses and molds the reflective sheeting to the sign surface. Heat, supplied by steam under pressure, activates the adhesive and firmly bonds the sheeting to the sign surface, and, at the same time, bonds the numerals to the sheeting. Time in the applicator is approximately six minutes.

Generally for every yellow speed-limit sign, a corresponding permanent "resume-speed" sign is used. These are the same shape and size, but are made with a green reflective background and bear no legend.

As they are completed permanent "slow" and "resume-speed" sign panels are stacked for shipment. At this time the disposable liner that was stripped off the reflective sheeting is placed over the face of each sign to serve as a protective interlayer during shipment.

The temporary "slow" and "resume-speed" signs reflectorized by the Santa Fe are 18 in. in diameter and of 12-gage steel. They are mounted on either 4-ft. or 8-ft. steel posts, 2¼ in. in diameter, pointed at one end to facilitate forcing them into the ground. To reflectorize these signs they are brought in from service or from storage. In the shop they are first sandblasted to clean up the surface, and then hand dipped in the degreasing unit. Since the surface is not rust-resistant, the metal panels are given a single spray coat of lacquer-base primer paint in the paint room, before the reflective sheeting is applied. Also, in order to provide a smooth surface on signs that require repair, the rivets that originally held the sign to the mounting post are removed and the sign is welded to the post instead.

After the prime coat has thoroughly dried it is wiped down with a tack cloth, then precut discs of reflective sheeting are tacked in place with activator. The remainder of the steps are similar to those for the permanent signs—yellow reflective sheeting with the word "SLOW" in 6-in. letters is used for the temporary "slow-speed" signs, and green sheeting with no legend for the temporary "resume-speed" signs.

In the bonding operation the entire temporary sign—post and all—is put in the applicator. Twelve of the 4-ft. signs and eight of the 8-ft. signs can be inserted at once.

Since it is important to give reasonable protection to the reflective surface of the signs during storage and shipping, the Santa Fe developed inexpensive packing methods that have proved very satisfactory. The metal overlay panels for the permanent signs are packed in special corrugated cardboard cartons that are stenciled for return to the sign shop. Thus each carton makes three or four round trips, cutting down packaging expense yet providing ample protection.

Because of their shape and the length of the attached post, the temporary "slow" and "resume-speed" signs presented a somewhat different problem. These are filament-taped together and wrapped in heavy paper in pairs—a yellow "slow" sign and a green "resume-speed" sign, since where one is needed, the other is also used in conjunction with it.

### *Field Installation*

Each of the cartons contains instructions to the field crews that install the signs. The reflectorized metal overlay panels are fastened directly over the old wood signs using No. 10 cadmium-plated or galvanized wood screws 1¼ in. long. This type screw will not rust and prevents rust "run down" on the face of the sign. Reflectorized signs are erected by the bridge and building forces in a single trip, since only one operation is necessary to convert the painted sign into one that is reflective. When the metal overlay blanks do need replacement, the planned procedure is simply to remove the screws, take the blank back to the sign shop, and apply a new reflective surface to the other side.

An interesting experiment on the durability of the reflective signs was started back in 1949 when a number of low, intertrack speed-control signs were reflectorized by mounting "Scotchlite" sheeting on bare aluminum. Although these reflectorized signs were subjected to dirt and weathering, it is reported that when they were washed off with soap and water, more than two years later, they were found to be virtually as good as new.

**TRAILERS-ON-FLAT-CARS are desirable traffic—but only so long as they produce *net revenues* without sacrificing existing rail traffic.**

# "Piggy Backs"—Good Or Bad?

## Observations on trailers-on-flat-car service, including suggested basis for charges

By JOHN S. GALLAGHER, JR.
Associate Editor, Railway Age

The interest being shown by some railroads and motor carriers in the possibilities of moving loaded highway trailers on railroad flat cars—for the account of the truckers—inevitably raises the question whether such a service is, from the railroad viewpoint, economically sound. If it is sound, how should a railroad determine the charges to be made for this service, how should these charges be made, and how should these charges be assessed?

The question of economic soundness is entirely dependent upon the likely volume of new traffic, the extent to which revenues will be adequate to leave a profit above expenses, and upon the effect the institution of such a service might have upon other traffic and other revenues.

Today, with relatively little movement of trailers on flat cars, there is considerable competitive pressure between railroads and motor carriers. It might be said that these competitive pressures have had three principal effects on railroad traffic and revenues:

- Loss of traffic through the maintenance of existing rail rates in the face of lower motor rates in some areas.
- Loss of revenue through reductions of rail rates to meet motor rates in other areas.
- Loss of both traffic and revenue through failure or inability to match motor carrier service.

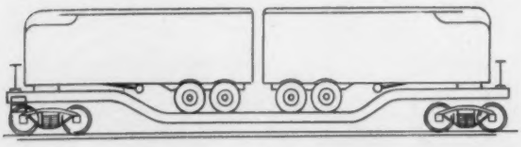
This competitive pressure on the railroads from the motor carriers is as strong in the matter of service as in rates—or stronger. In a recent survey of shippers of l.c.l. conducted by our associated publication, *Railway Freight Traffic*, 72 per cent of the respondents stated they believe *service* to be the most important factor in their choice between motor and rail carriers.

Although it may be argued that many shippers are unwilling to reveal that they buy chiefly on price, it is well known in the motor carrier industry—where the competition between individual concerns is very severe—that service is extremely important, and is often the key to obtaining important accounts. Since all *common carrier* truckers' rates are more-or-less equal (just like competing rail rates are more-or-less equal), competition between such motor carriers tends to revolve around service.

### *Special Trains Essential*

History is strewn with experiments whereby individual railroads have sought to handle highway trailers on flat cars—but were unable to generate a sufficient volume of traffic to make continued operation worth while. Analysis of these failures suggests the conclusion that, where the charges paid by the motor carrier were reasonable, the inadequacies of the rail service offered—particularly with respect to schedules and performance—stunted the growth of volume.

One railroad which has been able to provide train schedules and performance equal to, or better than, that which the truckers are able to provide for themselves over-the-road, and to operate at the hours of greatest need, has seen its volume steadily increase to substantial proportions. Therefore, in contemplating the feasibility



**In a widely distributed paper entitled "Future Freights," prepared for a forum at Northwestern University's School of Commerce, Lewis K. Sillcox, vice-chairman of the board of the New York Air Brake Company, appraises the railroad movement of loaded highway trailers as an inevitable development utilizing the favorable aspects of both railway and highway transportation.**

**"Loaded trains operating over extended distances . . . are the type of movement for which railways are designed, and on which they can reasonably hope to make a profit in the existing competitive transportation world. The local or branch-line freight stopping at every small station does not fit into the pictures; the highway vehicle is destined to take over local traffic, distributing from important railway centers. . . . If the railways fail to meet this challenge, the public will be persuaded to build superhighways supported by tolls to care for trucks. Once this is done, the railways will not be in a favorable position to recapture this business. They will have lost one of the greatest opportunities in their possession."**

**In a floor discussion of his paper at the Northwestern University forum on railroad management, Mr. Sillcox commented that the continued growth of toll highways designed for use by trucks places a premium on time. "The railroads must promote and accept the trucker as he is. Although there are still problems, the industry can hardly afford to wait for final determination of all the answers."**

of such trailers-on-flats operation in today's highly competitive market, past experience indicates that it is best to think in terms of new train mileage. This appears, most advocates of the plan believe, to be about the most practical way of obtaining a schedule which will attract traffic. On this basis, the computation of train operating costs is relatively simple.

The question will inevitably arise as to who should operate the loading and unloading terminals—the railroad, the truckers, or an agent working for both. If the railroad operates the terminal, particularly with respect to placing the trailers on the flat cars, and removing them, it may find itself in the position of having to absorb most of the cost of performing this service. If the truckers operate it, they probably will assume the cost; but if there is more than one truck operator using the terminal there will be the problem of how the work can be handled on behalf of all of them. A common agent or contractor may bill the railroad, the truckers, or both, for his services.

A determination of the volume of highway freight traffic actually moving between any two points, and what proportion of that volume is susceptible to movement on railroad flat cars, is an exacting task. A rough indication can be obtained by means of carefully planned highway counts (being careful to separate common carrier, contract, private, and other types of operators),

Newark News

**HIGHWAY FREIGHT TODAY—with very little trailer-on-flat car movement—makes motor carrier competition severe.**

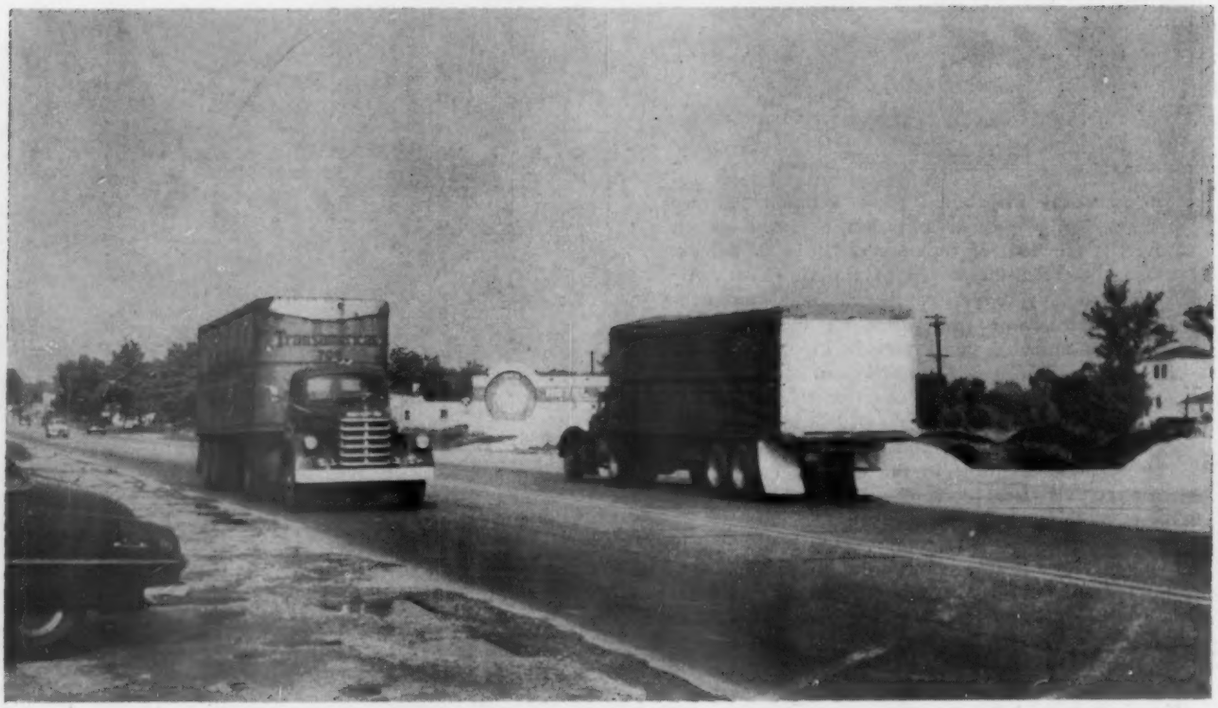
but the most valuable figures are likely to be those obtained with the knowledge and cooperation of the motor carriers concerned. With an accurate count of potential traffic, it is possible to arrive at a reasonable estimate of the volume which might be available for rail movement. It is obvious, of course, that not all highway trailer traffic is easily adaptable to rail movement.

The question of how much a railroad may charge for moving a loaded highway trailer is pretty much tied to the motor carrier's actual cost of operation. Unless the rail service is so much superior to that which the trucker can provide for himself on the highways that he can charge higher rates and still get volume traffic, the truck operator cannot pay a railroad more than it costs him to move the same trailer over the highway. Nor does any railroad want to impair its own profit margin by charging less than the trucker is willing and able to pay.

### *Figuring Truck Costs*

Actual determination of motor carrier operating costs is, at the very best, a tricky procedure. The experience of those who have made such studies indicates that it is best to confine any particular analysis to specific routes, because operating costs are influenced by the equipment used, topography, toll bridges and toll roads, fuel taxes, state license and weight fees, state load limits, and prevailing wage scales as well as by numerous other local factors. In other words, no figures on "average cost of trailer operation" will serve the purpose. As a general rule of thumb, experienced observers report that the cost of operating a tractor-trailer combination with a net load of 30,000 lb. runs between 25 and 33 cents a mile, the median being around 28.5 cents a mile. In some parts of the country, on certain runs, average costs may be as low as 20 cents a mile, while in others they may run as high as 37 cents.

It must be noted, also, that moving trailers on flat cars



**COMMON CARRIER MOTOR OPERATORS have been shown in surveys to be the best potential customers for a railroad trailers-on-flats operation.**

## WHAT ABOUT "BOX CAR" FREIGHT?

**Trailers-on-flats are not considered solely as a *competitive* tool by most railroad men who have given deep study to the idea. Instead, they look upon the operation as a method for bringing to the railroads large amounts of traffic and revenue which are now beyond their reach.**

**There is, however, the *parallel* problem of railroad rates. There are situations where the railroads are losing traffic to truck operators simply because of "unrealistic" railroad rates. Many of the men who are actively interested in "piggy-back" operations also believe it is time for the railroads to bring such "paper rates" down to a point where they will actually move traffic. They recognize that this is a means by which the industry can increase both its volume and its revenues.**

**They are also of the opinion, however, that simple reductions in rail rates will not dry up the existing volume of highway freight. Repeated surveys and studies have shown that service and convenience are increasingly important factors to the shipper in selecting his mode of transportation. The biggest railroad potential for "piggy-back" operations appears to lie in its ability to produce for the railroads traffic and revenues which would otherwise be completely unobtainable.**

---

will not necessarily relieve the motor carrier of all of this indicated cost. Such expenses as trailer ownership, insurance, terminal area operations, and other overhead expenses will not be substantially reduced or eliminated. Reports indicate these remaining costs can amount to 20 per cent, or more, of the total cost per mile.

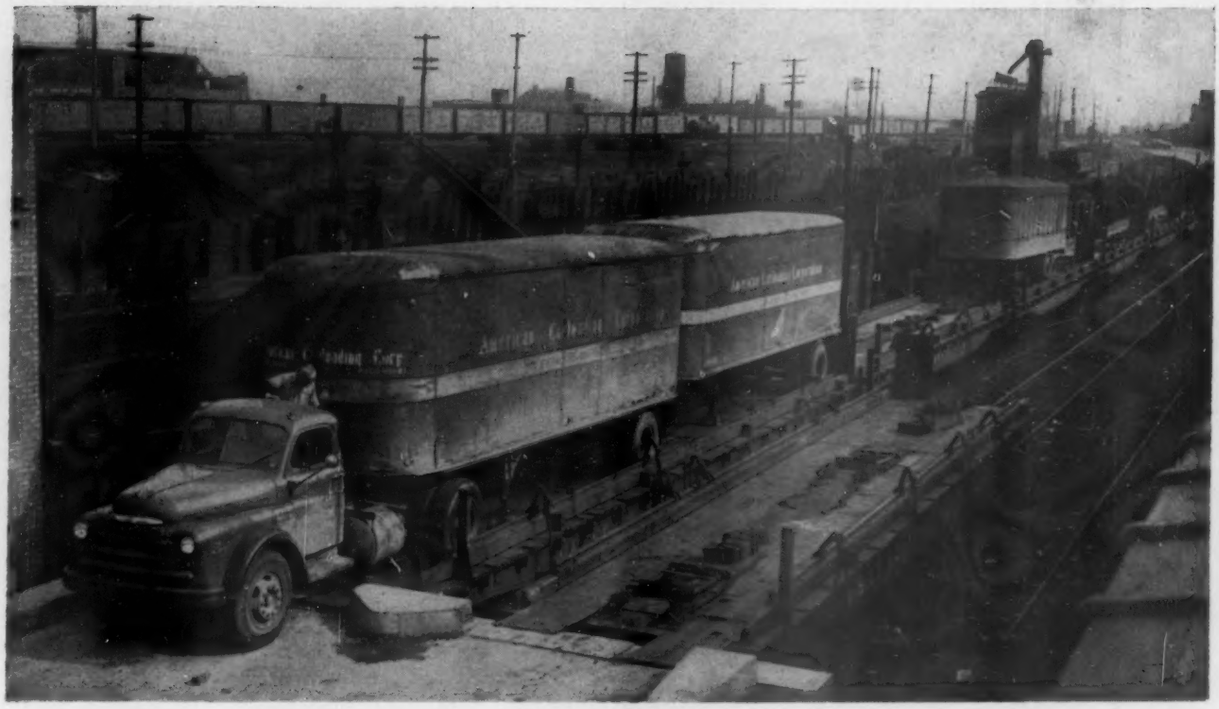
It would seem that the total railroad charge (including terminal charges, if any) for moving a loaded trailer should be about the same as over-the-road costs, less those expenses which will remain whether the trailer moves over the highway or by rail.

### *Rates or Divisions?*

The Interstate Commerce Act, in Part II, Section 216, paves the way for railroads and motor carriers to enter into joint divisions of through rates. The Interstate Commerce Commission, in the so-called "Substituted Freight Service" case (232, I.C.C. 683), ruled that railroad substituted service arrangements can be made available only to motor common carriers, not to contract carriers or private operators.

It is quite universally agreed among rate men that the introduction of tariff rates for the movement of loaded trailers belonging to private truckers or shippers opens wide an opportunity for diversion of traffic from the railroads, with its resultant bad effects on established rate structures. By establishing all charges on a division of revenue basis—avoiding the use of tariffs—it is not necessary to upset existing railroad rate structures. This means, advocates of the latter plan suggest, that any interested railroad should seriously consider limiting its movement of loaded highway trailers to those belonging to common carrier truckers which can be handled on a division-of-revenue basis.* In this way existing rate structures can be left undisturbed.

* Local conditions can be such that the introduction of tariff rates may not upset tariff structures or result in diversion of traffic, and might produce remunerative traffic which would otherwise not be available. Observers believe such favorable local conditions are likely to be rare.



**SUBSTITUTED SERVICE CONTRACTS avoid the necessity of publishing tariffs and thereby avoid upsetting existing rate structures.**

There are reasons other than rates and tariffs why most railroads will look kindly on the idea of restricting trailers-on-flats operations to common carrier truckers.

Last fall, careful, 24-hour, midweek highway checks were made by an interested observer at key points on three principal truck highways outside of Chicago. The findings of this study (summarized in the accompanying table) are informative and enlightening. A total of 4,895 tractor-trailer units were counted.

This survey demonstrated that common carrier truck movements have three characteristics which make them desirable traffic for any contemplated rail movement:

1. The average operator owns a large number of trailers, and is therefore in a position to give the railroad more business than would an operator owning only one or two trailer units.

2. The common carriers' movements are highly concentrated, with 79 per cent of their volume moving at night. Private and contract carriers' movements are more evenly spread over the 24-hour period, with no particular concentration.

3. The common carrier gets a higher ratio of loaded to empty movements than other truckers. Since a railroad would prefer to have loaded trailers moving in both directions, the common carrier is his best bet; private and contract carrier operations come pretty close to being one-way movements.

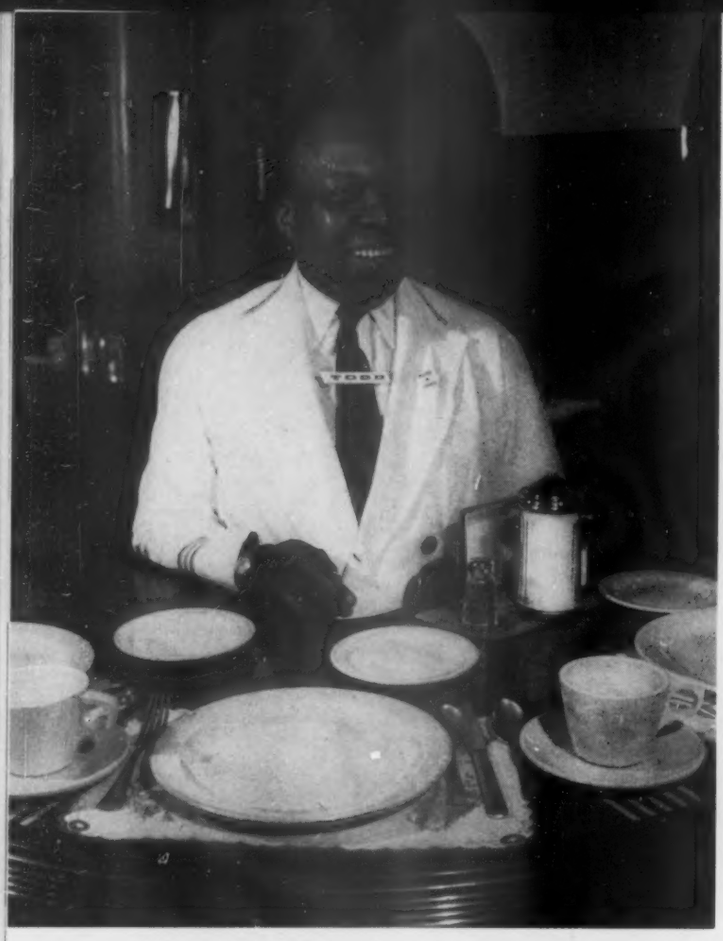
Use of a properly planned service, the "piggy back" advocates reiterate, will not enable common carrier truckers to divert a single ton of freight or dollar of revenue which they could not divert by continued operation over the highways. Further, the continued decentralization of industry with increasing numbers of plants located off-rail has given common carrier truckers large volume which is almost immune to rail competition—it is traffic the railroads have very little chance of ever moving in box cars under any conditions. Therefore, it is quite possible that the institution of a trailers-on-flats operation would produce *new* revenue for the railroads.

Whether trailers-on-flats is good or bad for the railroads resolves down to an evaluation of specific services between specific cities. Wherever there is sufficient volume of highway traffic susceptible to movement by rail, and where a suitable service can be provided at reasonable cost such a service is obviously good—but only so long as it produces *net revenues* for the railroad, without sacrificing existing traffic or revenues.

## A 24-HOUR COUNT OF SEMI-TRAILER TRUCK UNITS AT THREE SELECTED HIGHWAY LOCATIONS NEAR CHICAGO

| | Number of Units | Per Cent of Total | Per Cent of Trailers Loaded | No. of units moving by day and overnight: Day 8a.m.-6p.m. | Night 6p.m.-8a.m. |
|---|---|---|---|---|---|
| Common Carriers | 2,755 | 56.3 | 85.9 | 592 | 2,163 |
| Private & Contract Carriers of general freight | 514 | 10.5 | 52.8 | 250 | 264 |
| Others not susceptible to rail movement* | 1,626 | 33.2 | 49.6 | not separated | |

*Specialized carriers of liquid petroleum products, automobiles, agriculturally exempt products, and other special purpose and multi-destination operations not well suited for rail movement.



FOR SERVICE at lunch counters or . . .

TAVERN LOUNGE tables there is . . .

# A Place for Plastic Dishes

**Product has proved its worth on the North Western, but chinaware continues in regular use in "top" C&NW diners**

For a number of years many cafeterias and more modest restaurants have used plastic dinnerware to control the perennial problem of china breakage. Yet while plastic dishes have proved relatively indestructible, their use has been limited to more or less utilitarian eating places because the plastic ware lacks both the weight and luster of good china.

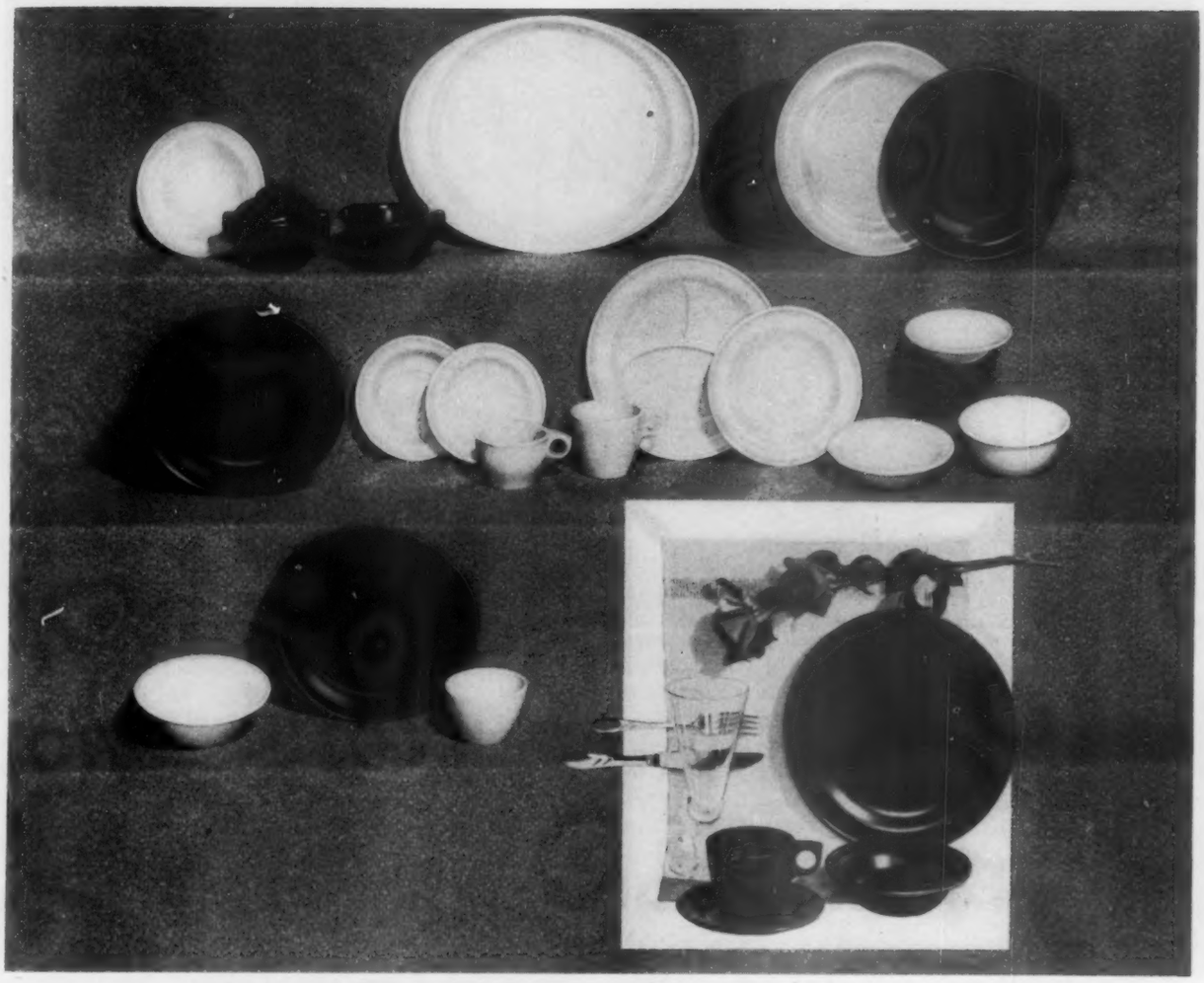
Now, however, a new, hard synthetic material, known as melamine, is being used to fashion dinnerware that both feels and looks very much like china. The Chicago & North Western has been testing melamine ware produced by two manufacturers—"Boontonware" made by the Boonton Molding Company, Boonton, N.J., and "Meladure" made by the plastics division of the General American Transportation Corporation—and has found them both highly satisfactory for all uses to which they have been put. Other roads have likewise introduced the new ware, including the Burlington, the Rock Island, the Wabash, the Long Island and the Union Pacific. The latter has made particularly extensive use of it not only in dining cars but also at its Sun Valley resort. Fred Harvey is currently employing plastic ware at several station restaurants and John J. Grier is doing likewise at a number of Baltimore & Ohio restaurants.

Aside from the fact that melamine dinnerware is virtually unbreakable, it has a number of other economical features. It is highly resistant to chipping and scratching (although the manufacturers do not recommend it for situations where sharp steak knives are in constant use). It is a "dead" sounding material and may be handled without much of the clatter usually associated with washing, stacking or serving with china. While it feels "substantial" and china-like, its weight, plate for plate, is somewhat less than commercial grade china. Where tray-toting is part of a dining service, this becomes an important factor. And unlike most other types of plastic ware, it is said not to curl or warp in boiling water.

### *Different Handling*

When the C&NW began using melamine ware, it developed that a certain amount of training was necessary for waiters, cooks and dishwashers. There are several basic differences in cleaning and handling procedure which, though not drastic, have an important bearing on keeping the ware looking new. If, for example, mechanical washing is employed, some cleaning compounds —notably those containing chlorine bleaches—should be avoided because prolonged use tends to dull the ware's normally glossy surface. To avoid this, the manufacturers have specified commercially available compounds which will both handle the plastic ware safely and also clean silver and glassware effectively.

Scouring with steel wool or an abrasive compound likewise will destroy the surface texture. In serious cases, staining of the more porous inner structure will result after the glossy surface has been scoured away. To a



**SIMPLE, MODERN, FUNCTIONAL DESIGNS are available in a complete range of fadeproof colors.**

considerable extent, however, even this staining condition can be corrected by special stain-removing compounds which the manufacturers specify.

Another problem arose with the long-established habit of prewarming dishes for hot foods. While the new ware can withstand temperatures up to 180 deg. F., the C&NW has noted a few instances where dishes have been placed in hotter spots with damaging results. Actually, melamine does not conduct heat readily. As a result, food will stay hot (or cold) for a reasonably long period without preheating or precooling. Oddly enough, the few dishes damaged by overheating are just about the only ones the road has discarded as unusable since the new ware was put in service well over a year ago.

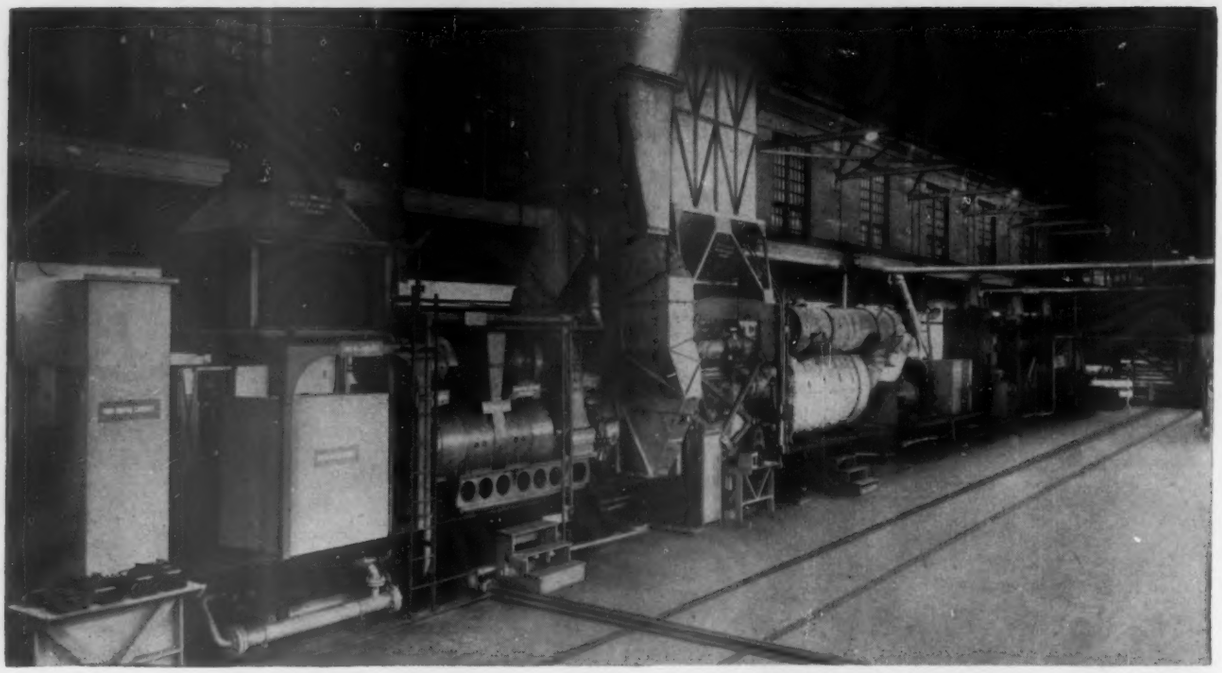
The durability of the new ware may ultimately change some dining car purchasing procedures and introduce a new overall economy. With regular commercial china, the breakage factor is sufficiently high for replacements to obscure any problem of old age. But experience with the new ware, which points to a constant service life of two years or more, shows that after that time the glossy surface texture gives away to a duller appearance caused by countless very fine scratches. The ware, of course, remains serviceable. It just isn't "fresh" looking enough for first class dining standards.

At least part of the answer, the C&NW management believes, lies in downgrading this still-useful ware into company services, camp cars, etc., where appearance is secondary. Because the new ware is designed to take rough handling, it has proved an adequate substitute for the heavy duty china ordinarily purchased for this type of food service.

### *But China Retains a Place*

So far, the C&NW has limited the use of melamine ware to lunch counter cars, tavern-lounge cars and to dining cars in extra service or on secondary runs. J. C. Ryan, manager of the dining car department, feels that fine china still "belongs" in the road's premier train diners.

The plastic ware has been introduced gradually and the C&NW is expanding its use, he said, adding, "but, for the time being at least, we do not intend to displace the quality china which we use in the cars assigned to our top trains."



**This turbine test installation has a rated capacity of 3,750 hp. and for more than an hour maintained an output of 4,250 hp.**

1952 A YEAR OF . . .

# Coal-Burning Turbine Progress

## B.C.R. Locomotive Development Committee's 750-hour high-temperature test at Dunkirk demonstrates importance of ash removal—Best thermal efficiency, 20 per cent—Fly-ash separator performance a critical factor

*Railroadwise, the matter of greatest interest which was considered at the recent meeting of Bituminous Coal Research, Inc., in Cincinnati, is the present status and future of the coal-burning gas-turbine locomotive which has been under development by the Locomotive Development Committee of that organization since 1945. The arrangement with the American Locomotive Company to continue the development of this turbine for commercial applications and to design a chassis for locomotive use was reported in the March 16* Railway Age, *page 23. An appraisal of the economic possibilities of the coal-burning turbine by Walter J. Touhy, president of the Chesapeake & Ohio, in his address at Cincinnati, was outlined in the March 23 issue, page 118.*

*On the same occasion John I. Yellott and Peter R. Broadley, director of research and assistant director of research, respectively, of the B.C.R. Locomotive Development Committee, reported what was accomplished in development of this turbine during 1952 at the committee's laboratory at the Dunkirk, N.Y., plant of the American Locomotive Company The text of their report follows.*

While the Allis-Chalmers locomotive-type gas-turbine power plant was being completed and given its factory tests in Milwaukee late in 1950, the Locomotive Development Committee was demonstrating that another gas turbine—a Houdry unit borrowed from the U.S. Bureau of Mines—could be operated successfully with coal by the direct-fired open cycle. The Houdry turbine, however, was limited by its blade and casing materials to temperatures below 950 deg. F. and the effects of air at temperatures up to 1,300 deg. F. could not then be explored.

The 1950 tests of the Houdry turbine showed that blade erosion, the L.D.C.'s major problem, could be prevented by the use of a highly efficient multitube fly-ash separator. A similar, but larger, separator was then designed and built for the new Allis-Chalmers plant. The installation was completed and the plant given its acceptance test in September 1951. Coal-fired operation was immediately undertaken.

The first 178 hours of coal-fired operation of the locomotive-type turbine in the fall of 1951 showed that the

new separator could protect the 4,250-hp. turbine as long as the individual separator tubes functioned properly. This preliminary 178 hours of operation was carried out with the use of a pilot oil burner in each combustor, and the maximum load carried for any significant period of time was 2,000 hp.

A 750-hour test was undertaken to determine the effect upon the turbine and other components of operation for prolonged periods at temperatures above 1,200 deg. F. and loads above 3,000 hp. The committee also stipulated that no oil was to be burned during the hours credited towards the 750-hour goal.

### *Oil Pilot Flame Eliminated*

Elimination of the oil pilot flame required further development of combustion equipment, but a burner-combustor combination was found which operated with no oil whatsoever over the entire range without blowing out at high loads or flashing back at low loads. A new coal pump was built which could supply the maximum fuel requirement—more than 4,400 lb. per hr. Clearances were increased within the turbine and compressor to give the machine more flexibility and the plant was put back into service late in January 1952.

The 750-hour test began on February 4, 1952. During the first two months of operation the plant reached its rated capacity—3,750 hp.—on nine occasions. On March 6, in the presence of the Steering Committee, maximum power of 4,250 hp. was maintained for more than an hour, showing that coal could fuel the plant as effectively as oil had done in the acceptance tests.

A number of difficulties were encountered during these first weeks of operation. Most serious was a leak which developed within the fly-ash separator because of a cracked weld. This leak occurred during the first 70 hours of the test and it resulted in the passage through the turbine of a large amount of coarse ash. This, in turn, caused the beginning of the erosion which was found throughout the first five stages when the machine was opened for inspection at the end of the test.

This separator leak and the resulting erosion were the forerunner of difficulties which attended the remainder of the 750-hour test. The separator proved to have a fundamental deficiency which caused it to become ineffective at intervals throughout the test. The blow-down lines from the individual tubes were combined into two manifolds which were led out through two openings in the separator pressure shell. These manifolds became plugged from time to time, and a plugged manifold immediately resulted in reduced separator efficiency.

A sampling procedure was instituted immediately after the first 70 hours to warn the operators of the presence of excessive amounts of ash at the turbine inlet.

Operation during the remainder of the 750-hour test was regulated by the weight of ash caught in each half-hour period. Whenever the amount of ash thus obtained indicated that the separator was not performing properly, coal firing was halted and efforts were made to clear the separator. If these were successful, coal-fired operation was resumed. If not, the unit was shut down and the separator was cleaned manually.

The test proceeded in a series of 188 periods of varying length. The longest was 3 minutes short of 24 hours; the average period was 4 hours.

The fuel used was a high-volatile bituminous coal from Willow Grove No. 10 mine, Pittsburgh No. 8 seam. Its approximate analysis showed, as received, 4.25 per cent moisture; 7.5 per cent ash: 39.45 per cent volatile matter; 48.8 per cent fixed carbon. Higher heating value, as received, was about 13,210 B.t.u. per lb.; effective heating value at 1,300 deg. F. was 12,200 B.t.u. per lb. The ash softening temperature (oxidizing atmosphere) was 2,100 deg. F. and the grindability was 55 to 60 (Hardgrove scale).

The total coal consumption was 2,132,250 lb. at an average firing rate of 2,840 lb. per hr. The power generated was 2,070,750 hp.hr. at an average load of 2,760 hp. The average specific fuel rate was 1.03 lb. per hp.hr., giving an average thermal efficiency of 18.7 per cent. Best thermal performance was reached at about 3,000 hp., where the specific fuel consumption was about 0.95 lb. per hr., giving a thermal efficiency slightly above 20 per cent.

The temperature record showed that the turbine inlet air temperature was always above 900 deg. F., while coal was being burned. Maximum temperature attained with coal firing was slightly above 1,300 deg. F. Average temperature was close to 1,200 deg. F.

Aside from the separator troubles mentioned previously, the plant operated reasonably well. A number of forced shutdowns were caused by foreign matter in the coal, which leads to the conclusion that a coal-fired gas-turbine locomotive should be supplied with prepared fuel from which all nuts, bolts, railroad spikes, etc., have been eliminated.

### *Ash-Disposal System*

The ash-disposal system gave trouble from time to time due to erosion of the lines leading from the separator to the disposal tank. Larger lines will eliminate this trouble in future tests. It was found that all of the ash from a 15-hour run could be caught in a single tank of water, with no make-up required. The tank was then emptied successfully by the simple process of opening the discharge valve.

Some unforeseen troubles were encountered in the electrical system, and much time was consumed in rebalancing generators which developed loose banding wires. Despite all of the problems, however, the test was completed on August 13.

A reduction in plant capacity had become evident during the last 150 hours and it was decided to run several capacity tests before dismantling the unit for inspection. These tests showed that the unit had lost a considerable part of its maximum capacity, and all evidence pointed to erosion of the turbine blades as the cause. The turbine was opened for inspection in the presence of the Steering Committee on August 26, and extensive erosion was found in the first five stages of the turbine. This erosion was most evident in those portions of the blading adjacent to the rotor. The damage was undoubtedly due to the excessive amount of coarse ash which had passed through the machine when the separator was not functioning correctly. The last row of rotor blades showed virtually no damage, indicating that

**The 750-hour test demonstrated that operation of an open-cycle coal-burning gas turbine at high temperature (1,300 deg. F.) does not differ in any important respects from operation at low temperature (800 deg. F.). When fly-ash removal is virtually complete for particles larger than 20 microns (approximately 0.001 in.) in diameter, blade erosion is negligible. When coarse ash is allowed to pass through the turbine, erosion follows rapidly. The L.D.C. program is now being concentrated on the remaining problem of maintaining top separator efficiency at all times. There is every reason to believe that this goal will be achieved as a result of the cooperation between the American Locomotive Company and the Locomotive Development Committee.**

the ash had been thoroughly pulverized prior to reaching these blades.

Closer examination of the blading showed that there were no ash deposits of any consequence. The erosion was similar to that encountered in early tests of the Houdry unit, when separator performance had been poor. The test left no doubt that only the best possible separator performance is good enough to protect the blades of a coal-fired gas turbine, and the separator in use during the test did not give the necessay protection.

Other components of the plant did a much better job than the separator, however. The two coal pumps stood up well and showed relatively little abrasion after 181 and 575 hours, respectively. Control of feed rate was satisfactory; a simple fluidizing device at the bottom of the pulverized-coal tank eliminated the bridging which had caused so much trouble in the preliminary tests.

Ring-supported combustors were in use for 698 hours of coal-burning as well as 140 hours of oil burning, and they came through the tests in excellent condition. Combustion efficiency was consistently above 95 per cent, and no oil was burned after the coal flame was established.

One major achievement in the test was the demonstration of a coal-burning power plant for locomotive service which complies with even the most stringent smoke-control ordinance. Most ordinances in effect today permit as much as 0.85 lb. of dust per 1,000 lb. of stack gas. The coal-fired gas turbine holds its dust emission below 0.2 lb. per 1,000 lb. of exhaust. The appearance of the stack even at full load was excellent, with only a grayish haze visible.

The test was run on a three-shift, six-days-per-week basis, for which full credit must be given to the shift supervisors—W. M. Meyer of L.D.C., P. M. Rotzler of Alco's L.D.C. engineers, and R. D. Lindstrom, formerly of L.D.C. and now of Solar Aircraft. Members of the test crews included the following engineers from L.D.C. member companies: Norfolk & Western—A. J. Graham, Robert Hord, Warner Jamison, and H. L. Scott; New York Central—H. C. Crouch; Chesapeake & Ohio—T. C. Spatig; Baltimore & Ohio—M. W. Shipley. Erection and preliminary operation of the plant were supervised on behalf of Allis-Chalmers by Thomas Coffey, Joseph Watkins, and William Crawford. Carl Kleppe maintained liaison between the test installation and the Milwaukee office. R. C. Allen and W. B. Tucker were helpful in finding solutions to many of the problems which arose during the test.

The American Locomotive Company was most cooperative in supplying plant and equipment as well as personnel. Participating in the test on a full-time basis were Messrs. Cargill, Kenney, Ostreye, and Wencek of the Dunkirk plant. Participating in phases of the test were Messrs. Breen, Bennett, Pearson, Johnson and Lane of the Schenectady plant. The installation of the test plant and the actual test operation were directed by E. L. Cofrances. F. D. Buckley was in charge of the development of the equipment used in the coal-feeding, combustion, and ash-removal systems.

# January Purchases $203,924,000

**Purchases lower than preceding January's in all categories but rail; total inventories also slightly below those of January 1952**

Purchases by domestic railroads of all types of materials in January 1953 totaled $203,924,000, compared with $220,769,000 in January 1952, as shown in an accompanying table. January 1953 purchases fell below those in the first month of last year in all categories except rail.

Commitments to purchase rolling stock totaled $45,820,000 last January, compared with $49,267,000 in January 1952. Included in equipment placed on order in

1953 RAILWAY PURCHASES*

| | January 1953 (000) | January 1952 (000) |
|---|---|---|
| Equipment ** | $ 45,820 | $ 49,267 |
| Rail | 10,323 | 8,230 |
| Crossties | 7,341 | 8,479 |
| Other Material | 95,017 | 101,956 |
| Total from Manufacturers | $158,501 | $167,932 |
| Fuel | 45,423 | 52,837 |
| Grand Total | $203,924 | $220,769 |

* Subject to revision

** Amount placed on order

the first month of the current year were 5,536 freight-train cars and 85 diesel-electric locomotive units.

Total inventories in January 1953 aggregated $839,830,000, a decline of eight per cent below the $909,490,000 for the comparable 1952 month. Inventories last January were below those of January 1952 for all materials except crossties, which had increased six per cent, from $104,090,000 to $110,135,000.

### JANUARY* PURCHASES OF MANUFACTURED GOODS
(Excl. Equipment and Fuel)

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $ 97,962 | + 15 | Feb. '52 | $112,532 | — |
| 1948 | 102,136 | + 10 | Apr. '52 | 121,686 | — 7 |
| 1949 | 110,271 | + 2 | June '52 | 106,108 | + 6 |
| 1950 | 73,861 | + 53 | Aug. '52 | 97,689 | + 15 |
| 1951 | 126,651 | — 11 | Oct. '52 | 112,248 | — |
| 1952 | 118,665 | — 5 | Dec. '52 | 113,047 | — |
| 1953 | 112,681 | | Jan. '53 | 112,681 | |

### JANUARY* PURCHASES OF RAIL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $7,723 | + 34 | Feb. '52 | $7,279 | + 42 |
| 1948 | 7,547 | + 37 | Apr. '52 | 7,242 | + 43 |
| 1949 | 7,407 | + 39 | June '52 | 3,720 | +178 |
| 1950 | 8,846 | + 17 | Aug. '52 | 2,156 | +379 |
| 1951 | 7,918 | + 30 | Oct. '52 | 6,465 | + 60 |
| 1952 | 8,230 | + 25 | Dec. '52 | 9,348 | + 10 |
| 1953 | 10,323 | | Jan. '53 | 10,323 | |

### JANUARY* PURCHASES OF CROSSTIES

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $7,421 | — 1 | Feb. '52 | $7,995 | — 8 |
| 1948 | 5,630 | + 30 | Apr. '52 | 9,684 | — 24 |
| 1949 | 7,473 | — 2 | June '52 | 8,690 | — 18 |
| 1950 | 3,618 | +103 | Aug. '52 | 8,565 | — 14 |
| 1951 | 6,276 | + 17 | Oct. '52 | 7,644 | — 4 |
| 1952 | 8,479 | — 13 | Dec. '52 | 6,915 | + 6 |
| 1953 | 7,341 | | Jan. '53 | 7,341 | |

### JANUARY* PURCHASES OF OTHER MATERIAL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $ 82,818 | + 15 | Feb. '52 | $ 97,258 | — 2 |
| 1948 | 88,959 | + 7 | Apr. '52 | 104,760 | — 9 |
| 1949 | 95,391 | — | June '52 | 93,428 | + 2 |
| 1950 | 61,397 | + 55 | Aug. '52 | 86,968 | + 9 |
| 1951 | 112,457 | — 16 | Oct. '52 | 98,139 | — 3 |
| 1952 | 101,956 | — 7 | Dec. '52 | 96,784 | — 2 |
| 1953 | 95,017 | | Jan. '53 | 95,017 | |

### JANUARY* PURCHASES OF FUEL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $59,602 | — 24 | Feb. '52 | $48,917 | — 7 |
| 1948 | 73,468 | — 38 | Apr. '52 | 43,313 | + 5 |
| 1949 | 65,368 | — 31 | June '52 | 38,663 | + 17 |
| 1950 | 47,063 | — 3 | Aug. '52 | 35,700 | + 27 |
| 1951 | 63,808 | — 29 | Oct. '52 | 41,620 | + 9 |
| 1952 | 52,837 | — 14 | Dec. '52 | 48,174 | — 6 |
| 1953 | 45,423 | | Jan. '53 | 45,423 | |

### JANUARY* TOTAL PURCHASES (Excl. Equip.)

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| 1947 | $157,564 | — | Feb. '52 | $161,449 | — 2 |
| 1948 | 175,604 | — 10 | Apr. '52 | 164,999 | — 4 |
| 1949 | 175,639 | — 10 | June '52 | 144,771 | + 9 |
| 1950 | 120,924 | + 31 | Aug. '52 | 133,389 | + 19 |
| 1951 | 190,459 | — 17 | Oct. '52 | 153,868 | + 3 |
| 1952 | 171,502 | — 8 | Dec. '52 | 161,221 | — 2 |
| 1953 | 158,104 | | Jan. '53 | 158,104 | |

*Subject to revision.
†All total inventory figures taken from I.C.C. statement M-125 for the month indicated.

### JANUARY* INVENTORIES OF RAIL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $30,192 | + 18 | Feb. 1, '52 | $46,153 | — 23 |
| 1948 | 32,924 | + 8 | Apr. 1, '52 | 48,027 | — 25 |
| 1949 | 33,243 | + 7 | June 1, '52 | 43,456 | — 18 |
| 1950 | 31,926 | + 11 | Aug. 1, '52 | 34,328 | + 3 |
| 1951 | 38,278 | — 7 | Oct. 1, '52 | 32,682 | + 9 |
| 1952 | 41,981 | — 15 | Dec. 1, '52 | 35,899 | — 1 |
| 1953 | 35,476 | | Jan. 1, '53 | 35,476 | |

### JANUARY* INVENTORIES OF CROSSTIES

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $ 83,891 | + 31 | Feb. 1, '52 | $104,057 | + 6 |
| 1948 | 92,300 | + 19 | Apr. 1, '52 | 115,100 | — 4 |
| 1949 | 94,256 | + 17 | June 1, '52 | 111,967 | — 2 |
| 1950 | 101,394 | + 9 | Aug. 1, '52 | 113,237 | — 3 |
| 1951 | 83,804 | + 31 | Oct. 1, '52 | 110,388 | — |
| 1952 | 104,090 | + 6 | Dec. 1, '52 | 108,128 | + 2 |
| 1953 | 110,135 | | Jan. 1, '53 | 110,135 | |

### JANUARY* INVENTORIES OF OTHER MATERIAL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $476,625 | + 31 | Feb. 1, '52 | $695,555 | — 10 |
| 1948 | 560,703 | + 11 | Apr. 1, '52 | 693,504 | — 10 |
| 1949 | 611,864 | + 2 | June 1, '52 | 688,278 | — 9 |
| 1950 | 528,399 | + 18 | Aug. 1, '52 | 669,279 | — 7 |
| 1951 | 526,865 | + 19 | Oct. 1, '52 | 654,816 | — 5 |
| 1952 | 683,203 | — 9 | Dec. 1, '52 | 634,847 | — 2 |
| 1953 | 624,671 | | Jan. 1, '53 | 624,671 | |

### JANUARY* INVENTORIES OF SCRAP

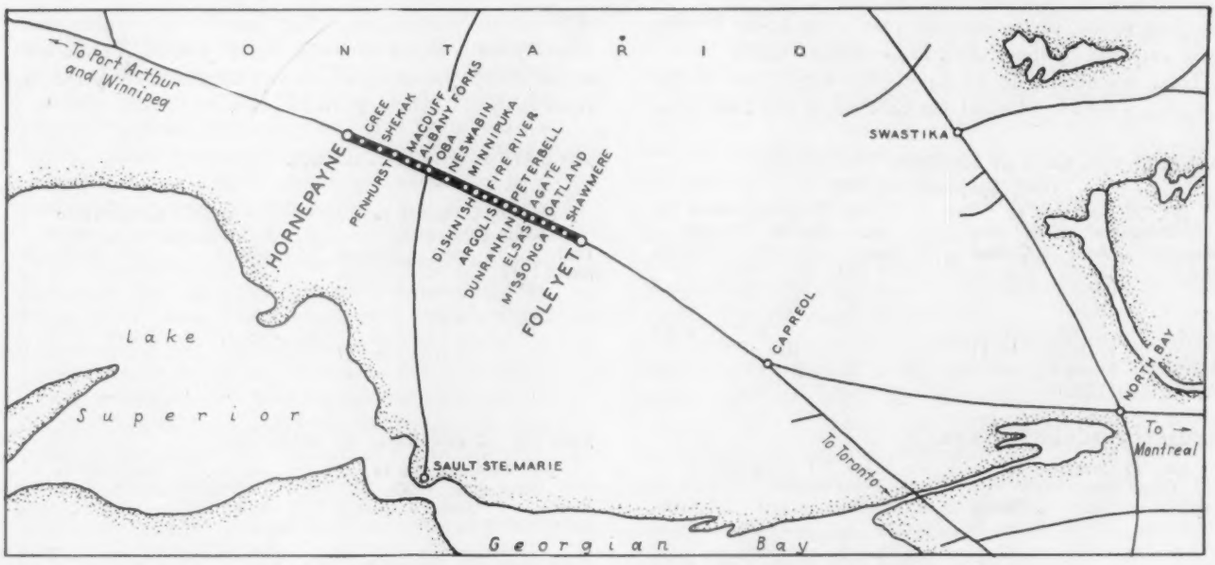
| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $12,572 | + 53 | Feb. 1, '52 | $20,099 | — 5 |
| 1948 | 13,225 | + 45 | Apr. 1, '52 | 19,348 | — 1 |
| 1949 | 18,849 | + 2 | June 1, '52 | 18,329 | + 5 |
| 1950 | 14,874 | + 29 | Aug. 1, '52 | 19,286 | — |
| 1951 | 18,260 | + 5 | Oct. 1, '52 | 17,894 | + 7 |
| 1952 | 22,374 | — 14 | Dec. 1, '52 | 15,953 | + 20 |
| 1953 | 19,194 | | Jan. 1, '53 | 19,194 | |

### JANUARY* INVENTORIES OF FUEL

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $49,873 | + 1 | Feb. 1, '52 | $57,957 | — 13 |
| 1948 | 66,388 | — 24 | Apr. 1, '52 | 60,435 | — 17 |
| 1949 | 96,900 | — 48 | June 1, '52 | 58,531 | — 14 |
| 1950 | 48,928 | + 3 | Aug. 1, '52 | 56,010 | — 10 |
| 1951 | 58,612 | — 14 | Oct. 1, '52 | 56,835 | — 11 |
| 1952 | 57,842 | — 13 | Dec. 1, '52 | 47,797 | + 5 |
| 1953 | 50,354 | | Jan. 1, '53 | 50,354 | |

### JANUARY* TOTAL INVENTORIES†

| Year | Jan. '53 Compared to Other Jans. (000) Amt. | % Change | Month | Jan. '53 Compared to Other Months '52 (000) Amt. | % Change |
|---|---|---|---|---|---|
| Jan. 1, 1947 | $653,153 | + 29 | Feb. 1, '52 | $923,821 | — 9 |
| 1948 | 765,540 | + 10 | Apr. 1, '52 | 936,414 | — 10 |
| 1949 | 855,112 | — 2 | June 1, '52 | 920,561 | — 9 |
| 1950 | 725,521 | + 16 | Aug. 1, '52 | 892,140 | — 6 |
| 1951 | 725,819 | + 16 | Oct. 1, '52 | 872,615 | — 4 |
| 1952 | 909,490 | — 8 | Dec. 1, '52 | 842,624 | — |
| 1953 | 839,830 | | Jan. 1, '53 | 839,830 | |




**OBA SUBDIVISION, equipped with C.T.C., is about half way between Montreal and Winnipeg.**

## ON THE CANADIAN NATIONAL

# C.T.C. for 12 Trains Daily

**Train operation in light-traffic territory by signal indication based on siding-to-siding block, employing power switch at one end of sidings and spring switch at the other, without intermediate signals**

On a single-track, 148-mile subdivision which has 10 to 12 scheduled trains daily, the Canadian National has installed a centralized traffic control system in which the costs of the project were reduced in proportion to the traffic.

This installation has a power switch at one end of each siding and a spring switch at the other. Overall blocks extend from siding to siding, with no provision for following moves in such a block. This arrangement saved the expense of intermediate signals, and as a result, for a cost not too much more than for complete conventional automatic block, the Canadian National has attained the important objective of train operation by signal indication, as well as avoiding a very high percentage of train stops when entering and leaving sidings.

### *Location of Signaling*

This new signaling is between Foleyet, Ont., and Hornepayne, on the Oba subdivision, which is part of the Canadian National transcontinental route from Halifax on the Atlantic to Vancouver on the Pacific. As shown on the map, lines from Montreal and Toronto join at Capreol. From Capreol, the line extends west, and slightly north, through the territory north of Lake Superior, Oba being about 200 miles directly north of Sault Ste. Marie. In general, the railroad follows the natural divide between the Great Lakes and the Hudson Bay region.

This Oba subdivision lies in typical North Woods country, mostly wooded with spruce, pine, poplar and cedars. There is no farming or industry in this territory except for a limited amount of lumbering and pulp wood cutting.

### *Grades and Curvatures*

Between Foleyet and Agate, 38 miles, there are numerous curves ranging up to 6 deg. The ruling grade eastbound varies from 0.2 to 0.4 per cent for about 9.5 miles east of Elsas. Between Agate and Hornepayne, 110 miles, the grades and curvature are light. Maximum permissible speeds are 60 m.p.h. for passenger trains and 50 m.p.h. for freights. Speed reductions to 40 m.p.h. are in effect at six locations, to 45 m.p.h. at one, and to 50 m.p.h. at six locations.

The Algoma Central & Hudson Bay crosses the Canadian National at Oba, 109 miles west of Foleyet. At Oba there are two sidings, of 89 and 92-car capacity, one siding for passenger train meets, and a small interchange yard.

Trains stop for fuel and water, and for inspection, at Fire River, where there is an extra long siding. Single sidings at 15 other places range in capacity from 77 to 82 cars. At one end of each of these sidings there is a

short set-off track to hold bad-order cars or camp cars used by track gangs.

### *Why the Oba Segment Was Signaled First*

Previously, there was no signaling anywhere in the entire 1,083 miles between Capreol and Winnipeg. The Oba subdivision was chosen to be signaled first because the line's three eastbound passenger trains are scheduled to meet the corresponding three westbound passenger trains within its limits every afternoon. Also, fast merchandise freight trains between Montreal or Toronto and Winnipeg are scheduled to meet on this subdivision. The number of trains varies from an early morning low to a mid-afternoon peak, during which for a few hours operations are at the rate of practically 60 trains a day, although the actual total for the 24 hours may range from a low of 10 trains to about 16, with infrequent peaks of 18 or 20.

Three passenger trains are operated each way daily in the summer, July 1 to October 1, and two each way are operated daily in the remainder of the year. Six manifest freight trains are scheduled daily. Freight traffic, such as merchandise and manufactured products, varies from a low on Monday and Tuesday to a high on the weekends. During the winter, after navigation closes on the lakes, about four trains of loaded grain cars are handled eastward daily from about December 1 to April 1.

### *Difficulties in Getting Operators*

Because of the isolated locations of offices, it was difficult to secure enough good operators for the Oba subdivision. The dispatcher had to work with information from eight day operators and five night operators, or in the peak period of the day roughly from every other one of the 17 sidings. Each open office held a 20-minute time block behind each passenger train. During winter, trains were operated on absolute block which required 13 extra operators. To get trains over the subdivision in reasonable time exceeded the capabilities of the train order system.

Freight trains commonly took nine or ten hours, even more, between Hornepayne and Foleyet, an effective speed of about 15 m.p.h. Some freights were unable to depart from Foleyet or Hornepayne when ready in the late forenoon and early afternoon, because passenger train time was near. Delays were so serious that they adversely affected the overall east-west performance of the railway.

The Canadian National for several years has had

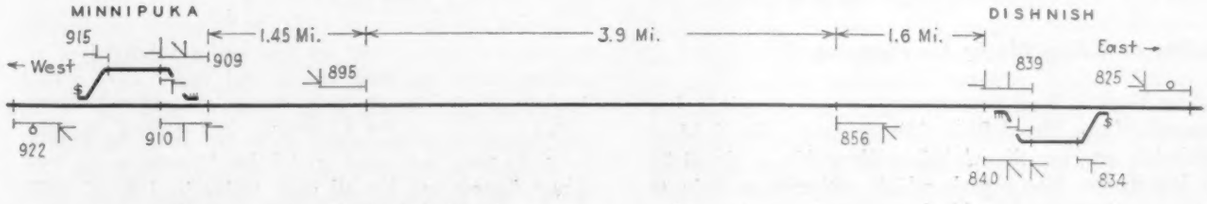
**SIGNALS GOVERN TRAIN MOVEMENTS, the blocks extending from siding to siding.**

complete C.T.C. in service on two subdivisions with heavier traffic; one from a point near Montreal to Levis (Quebec), and a second from Moncton, N.B., to Halifax, N.S. Based on the excellent results in these territories, it appeared logical to install C.T.C. on the Oba subdivision.

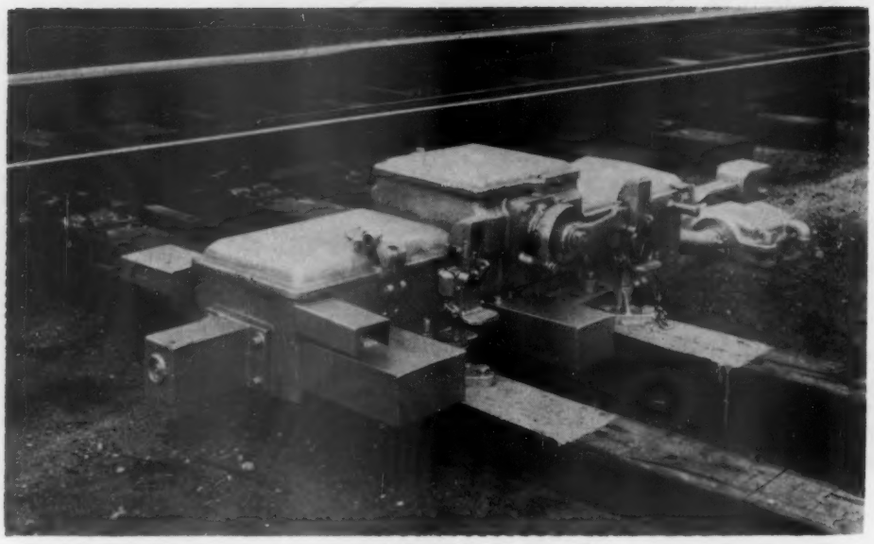
With total traffic at times as low as 10 trains daily, however, it was desirable to install, at first, something less than full C.T.C. in order to reduce the cost somewhat in proportion to the volume of traffic. This was particularly important because it was recognized that similar signaling is needed on the entire 1,083-mile Capreol-Winnipeg link between Eastern and Western Canada, for which reason funds available for signaling had to be spread as thin as was consistent with safety and train operation by signal indication.

### *Switch and Signal Arrangement*

The typical arrangement of signals and switches, in this modified C.T.C., is illustrated. A power switch is installed at one end of each siding, and a spring switch at the other. At each power switch there is a standard arrangement of signals to direct trains either to (1) continue on the main track; (2) enter the siding; (3) leave the siding; or (4) stop. At the spring-switch end, there




**PLAN OF SIGNALING for siding-to-siding block.**



**POWER SWITCH MACHINES are used at entrance end of sidings.**

is a C.T.C.-controlled dwarf signal to direct a train, on the siding, to depart. This move is made by trailing out through the spring switch, so no stop is required for trainmen to handle the switch.

As a general rule, trains enter a siding at the power switch end and depart at the spring switch end. Signaling is arranged, however, to direct a train to enter a siding at the spring switch end if the dispatcher decides that such a move is preferable. For example, if an eastbound train is to be directed to enter the spring switch end of Minnipuka siding, the dispatcher sends out a control to cause Signal 92.2 to display yellow over an illuminated lunar white marker which includes the letter "S." This aspect directs the eastbound train to stop short of the switch at the west end of Minnipuka. Then the head brakeman reverses the switch, using the hand-throw stand, so the train can enter the siding. After the train is in the clear, the trainman returns the switch to normal.

In this arrangement of power and spring switches, if other factors are equal, maximum flexibility of train operations can be attained by locating the power switch at the east end of one siding, and at the west end of the next, etc. This procedure was followed except where local conditions dictated otherwise. For example, a spring switch was not installed where a train would be ascending a grade when pulling out of a siding, because, at such locations, it might be necessary for an engineman to back up to take up slack when getting his train started. Such a move on a spring switch might result in a derailment. Power switch machines are used at both ends of the sidings at Fire River and at Oba where trains take water. Of the 15 other sidings, the power switch is at the east end of seven and at the west end of eight.

### *Siding-to-Siding Block; No Flagging*

The block is from power switch to power switch. For example, from Signal 91 at Minnipuka to Signal 84 at Dishnish, or from Signal 101 at Neswabin to signal 91 at Minnipuka. The signals which authorize a train to enter a siding-to-siding block operate to display either red for Stop or green for Proceed, the latter indicating that the entire siding-to-siding block is unoccupied. There is no signaling to allow a following train to enter a block occupied by any train. With this practice, no flagging protection is required, except for unusual circumstances, this being an important factor, especially in severely cold weather. The siding-to-siding block plan produced some saving by eliminating intermediate automatic block signals, as such. Signals such as 856 and 895, between Dishnish and Minnipuka, are approach signals. For example, Signal 856 displays the yellow aspect when Signal 84 is at Stop, or when 84 is lined up for an eastbound train to enter the siding.

### *How Trains Save Time*

The C.T.C. on the entire subdivision is controlled by one machine in the dispatcher's office at Hornepayne. The illuminated track diagram on this machine indicates the location and progress of all the trains, so that the dispatcher can control the signals to direct trains to make close meets. An important benefit is that the C.T.C. has enabled the dispatcher to eliminate the train congestion which formerly occurred nearly every afternoon on this subdivision. Now he can handle the six passenger trains on schedule, and also keep the freights moving. Formerly, many of the freights ran into overtime (more than 12 hours), but now such a thing is unknown except in case of accidents.

With train order operation during the first three months of 1951, manifest freight trains averaged 8 hr 19 min. for the subdivision, as compared with 6 hr. 19 min. in the same months of 1952 (using C.T.C.), a saving of about 2 hours in 148 miles.

During the summer of 1952, an extensive reballasting project was under way on this entire subdivision, requiring numerous slow orders and many work trains. In spite of this interference, the manifest freight trains saved an average of 1 hr. 8 min., and the drag freights 1 hr. 44 min. eastbound, and 1 hr. 18 min. westbound. These figures are for all such trains in July of 1951, compared with July 1952.

**SPRING SWITCH MECHANISMS were installed at the leaving ends of sidings.**

With no slow orders or work train interference in 1953, operating officers expect that the time saving ascribable to the C.T.C. will be about 2 hours for manifest trains, and 3 hours or more for other freights. These savings are accomplished primarily by making closer meets by means of the C.T.C. For example, on September 25, passenger trains No. 2 and No. 3 made a nonstop meet at Minnipuka.

In a meet between two freight trains at Neswabin that same afternoon, the actual standing wait for the eastbound train, on the siding, was only 35 sec., measured by a watch on the locomotive. The westbound train passed at normal speed. If train orders had still been in use, the westbound train would have taken siding at Minnipuka, 10 miles east. Thus, in this instance the C.T.C. saved about 40 min. for the westbound train and did not delay the eastbound. On September 25, the same eastbound freight continued east to Fire River to take siding at the west end while passenger trains No. 1 and No. 2 made a meet. Then all three trains were soon on the move again.

### *Snow Plow Run Cut One Day*

Previously, with train orders, two days ordinarily were required to run a snow plow in either direction between Hornepayne and Foleyet. With C.T.C. this snow plow run is being made in one day. Previously, freight trains were not called to depart from Foleyet or Hornepayne in the late forenoon as time approached for the parade of passenger trains. Now these trains depart as soon as they are ready.

No records are available of the time saved in this respect by the C.T.C., but the chief dispatcher states that ability to instruct a train to leave Hornepayne or Foleyet the moment it is ready is saving many hours that were not shown on the train sheet previously.

The final section of this project was placed in service on December 14, 1951. An immediate cash benefit was that the employment of 13 extra operators required to place absolute block in service during winter months was not necessary. In the course of a few months, other offices were closed either part or full time, so that 17 more operators were moved to offices west of the C.T.C. territory, where they were needed badly.

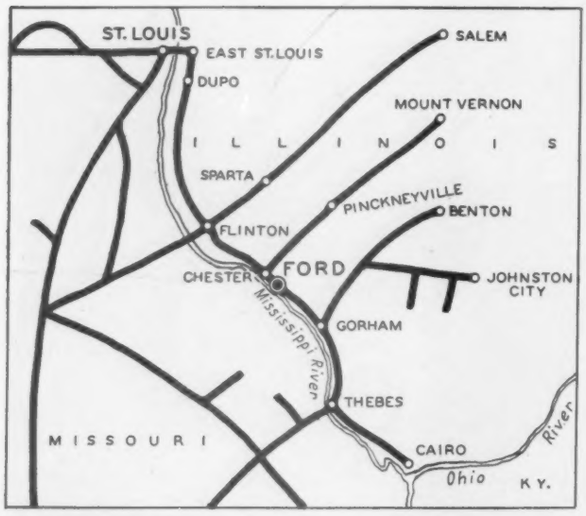
### *When There's Snow in Switches*

When all the siding switches were operated by hand-throw stands, the track crews cleaned the snow from the switches during and after snow storms as part of their regular duties. Brooms and shovels were on hand, placed at the switches for trainmen to clean a switch if necessary when operating it. These same practices are being continued, with respect to the power switches and spring switches in the C.T.C. In the new concrete relay house of each power switch there is a separate room 7 ft. by 8 ft. with a stove, for use as a phone booth, and as warming room for track forces.

In this area, snow falls as soft flakes, and the air is still, with very little or no wind in cold weather. Therefore, ordinarily, snow does not drift into switch points too much, after they have once been cleaned following a storm. If a spring switch does not close to the normal position after a train trails out through it, the dispatcher can tell this from the track occupancy indication, and can call trackmen to clean the snow or other obstruction from the switch.

In brief, the spring and power switches, as well as all the other signaling facilities in this C.T.C. project, are operating successfully in an area 200 miles north of Lake Superior where winter temperatures range from 25 to 40 below zero for weeks. The record low in the past few years is 72.6 deg. below zero F.

This project was planned and installed by Canadian National forces under the jurisdiction of H. L. Black, system signal engineer, with headquarters at Montreal, and under the direction of E. P. Stephenson, signal engineer, Central Region, at Toronto. N. W. Mountain, superintendent of signals of the Northern Ontario district, had charge of field construction forces. The major items of signaling equipment were furnished by the Union Switch & Signal Division of the Westinghouse Air Brake Company.




**FORD, ILL., was selected as the site of the coal transfer because it is convenient to the lines of the Missouri Pacific serving mines in southern Illinois.**

## MISSOURI PACIFIC BUILDS

# Coal Transfer On Mississippi

**Facility at Ford, Ill., with capacity of 1,250 tons an hour, assures improved markets and service for mine operators and better control of car supply**

Important benefits are being realized by the Missouri Pacific and coal-mine operators on its lines in the Bush, Pinckneyville and Sparta areas of southern Illinois as a result of the construction by the railroad, at a cost of $551,000, of a rail-to-barge coal transfer on the Mississippi river at Ford, Ill. The coal is dumped from self-clearing cars into a track hopper, which has a capacity of 220 tons, and transferred to barges in the river by means of a 60-in. moving belt passing under the railroad's main-line tracks and through a headhouse to a loading device suspended between two main piers. The barge-loading capacity of the installation is 1,250 tons an hour.

The new transfer at Ford (also known as Kirk's Landing) is on the east bank of the river some 70 miles south of St. Louis and approximately 5 miles south of Chester, Ill. It serves mines on Missouri Pacific tracks in Perry, Franklin, Williamson and Randolph counties in southern Illinois. The objective in building it was to provide for mine operators in the originating districts access to new and improved market outlets for their product. From the transfer coal moves in barge-load quantities to various destinations up and down the Mississippi and its northern and southern tributaries.

One of the reasons for placing the facility in the Chester area was to bring it as close as possible to the mines in order to avoid the long terminal delay encountered in handling coal trains through the St. Louis switching area. Another is that the location makes it possible for the road to control the car supply by handling its own cars from mine to transfer and back to mine. One advantage of this situation is that the road can select the type of car best suited for the work being performed at Ford. Of even greater importance, it reduces the turn-around time from mine to transfer and back to mine. This has the effect of materially increasing the number of hopper cars available.

### *Electric Car Shaker*

The coal cars are unloaded into the hopper at a tipple which is equipped with an electrically operated car shaker to speed unloading. In the initial operation a car of coal was unloaded in 2½ min. and it is expected that the rate will be stepped up to a car each minute.

There are two tracks through the tipple, each of which extends north and south a distance sufficient to hold 25 cars on either side. Thus, the unloading yard will hold 50 loaded cars, or 25 on each track to the north of the tipple, and the same number of empty cars on the extension of the two tracks to the south. Cars move into and out of the tipple by gravity and speed is controlled by hand brakes. At present one car shaker is mounted in the tipple; it can be moved to cover either track. If there is sufficient demand, an additional shaker can be easily installed to permit unloading from both tracks simultaneously.

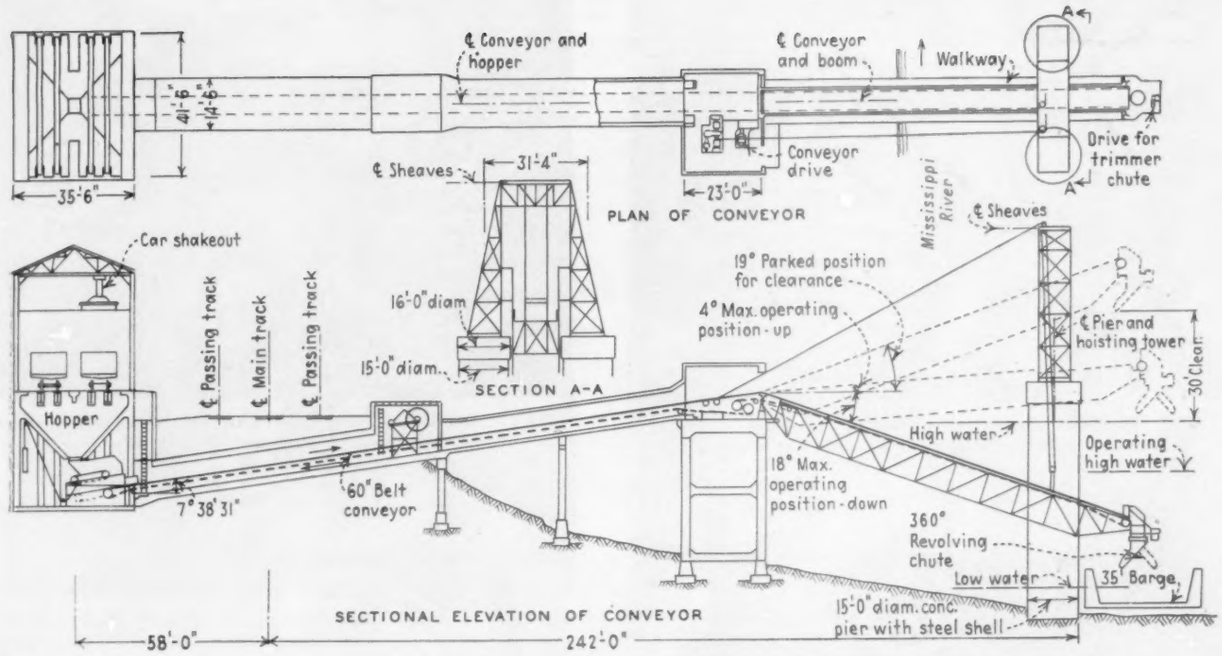
Access to the tipple is by a running track which parallels the main-line track of the Missouri Pacific's Illinois division and by a lead track to the north of the two tracks leading into the tipple. Loaded cars are placed on these tipple tracks from the north end of the facility and empties are removed from the south. Coal trains from the Franklin and Williamson County mines move from south to north on the Illinois division while trains from the Pinckneyville area and the Sparta sector move from north to south. Mines in the Sparta region shipping through the Ford transfer are on the Missouri-Illinois, a Missouri Pacific subsidiary.

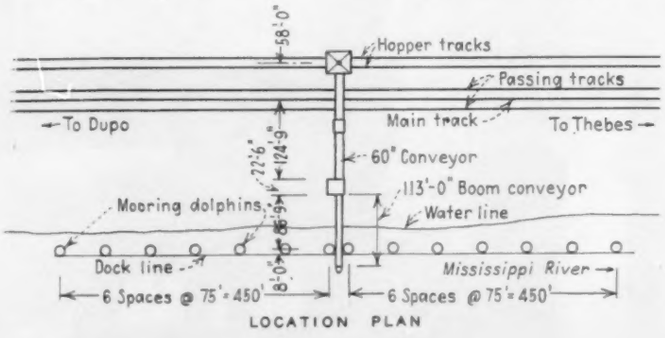
Space for a four-track yard adjacent to the main line has been set aside north of the coal transfer. Construction of the yard will be carried out when it is needed.

### *Main Piers and Dolphins*

At the river end of the conveyor belt the loading boom is suspended between two main piers, each consisting of a steel shell, 15 ft. in diameter and 60 ft. high, filled with concrete. Extending both ways from the main piers is a series of mooring dolphins of which there are 12 at present, six above and six below the main piers. Both the piers and the dolphins are secured to bed rock by steel pins or dowels, 2 in. in diameter and 11 ft. long.

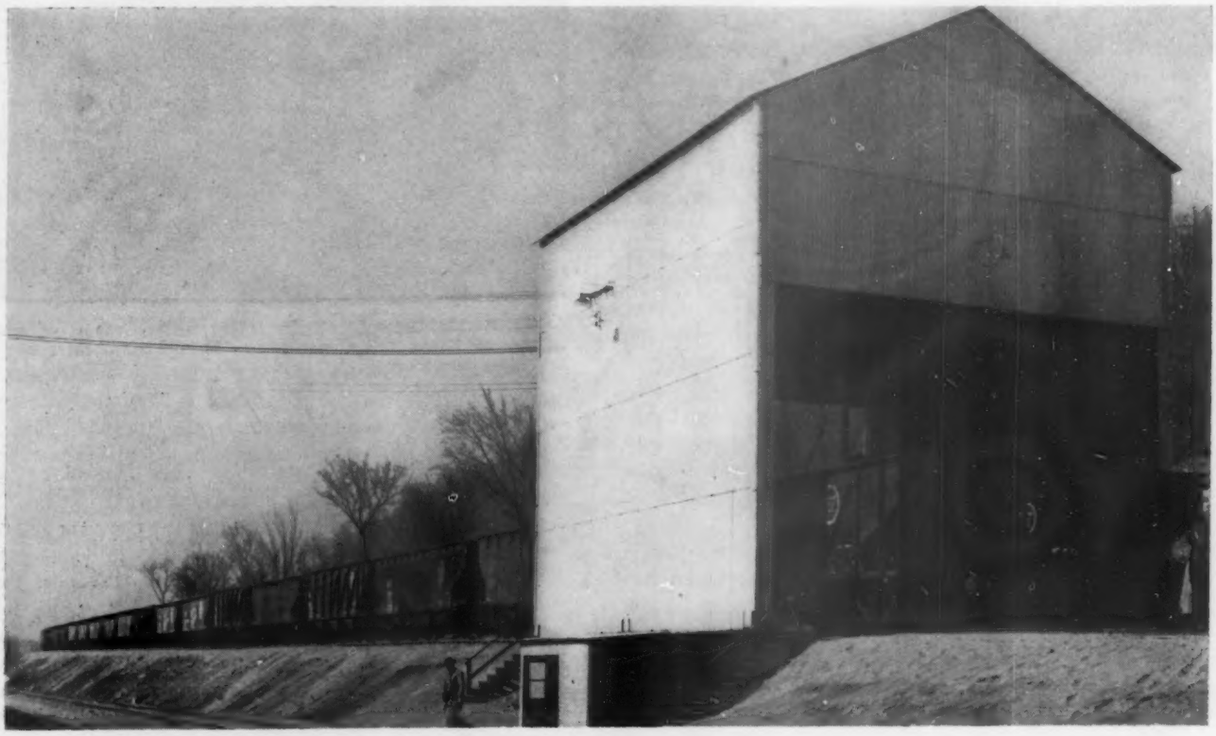
Each dolphin has the same dimensions as the main



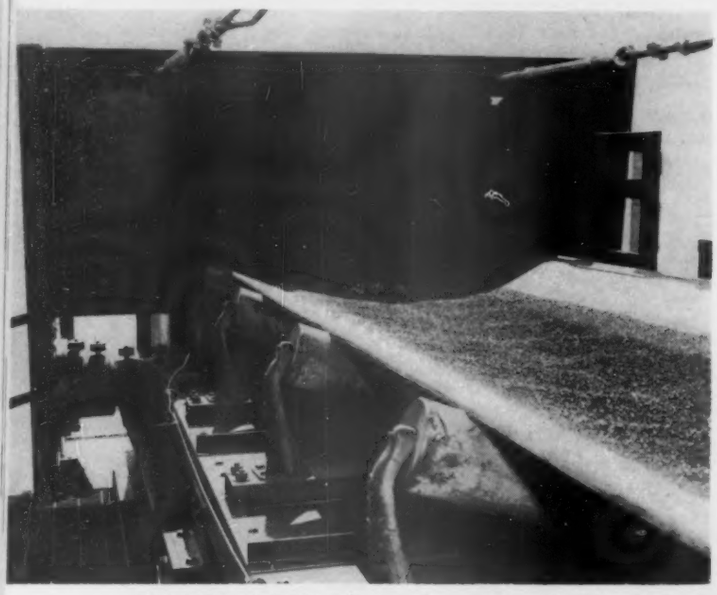

**CONVEYOR DETAILS show how the new facility has been planned for maximum effectiveness. An example is the vertical operating range of the loading boom. Arrangement of the mooring dolphins is shown in the location plan at the left.**

**CARS IN POSITION for unloading into the hopper under the tipple. The cars to the left of the tipple are loaded.**




**CAR SHAKER** speeds unloading of the cars. Electrically operated, it may be used on cars on either track.

**CONVEYOR BELT** 60 inches wide carries coal from the 220-ton hopper under the tipple to barges.



**LOADING CHUTE,** fitted at its outlet end with a full revolving trimmer, catches coal brought up by conveyor.

**COAL BEING DISCHARGED INTO BARGE** at river end of the coal transfer. Controls are in the cabin on top of the right-hand tower.

piers but, instead of being entirely filled with concrete, is filled with concrete for a height of 20 ft. from the base and then filled to the top with sand. Each has a cap of asphaltic concrete. Mooring rings are conveniently placed on each dolphin for securing barges. For storage purposes, there are barge anchors above and below the facility. These anchors are of concrete, capped and equipped with mooring rings and 500 ft. of cable each. Should later demands make it necessary, additional dolphins and anchors will be placed. Barges are moved into loading position and manipulated while receiving the lading by a harbor boat and pulling lines secured to the dolphins.

The entire plant is electrically operated, with controls in the north or upstream pier. The loading boom has an adjustable revolving chute trimmer designed to handle stoker and domestic grades of coal. In loading barges it is necessary that the coal be distributed evenly in the vessel to avoid listing, and the purpose of the trimmer is to see that the coal is placed in exactly the right position. The trimmer installed at Ford is said to be the only one of its kind on inland waterways.

To conform to varying stages of the river, the boom has an up-and-down operating range of 44 ft. The transfer can operate from a low-water stage of —1.5 ft. on the river gage at Ford to a high-water stage of +34.5 ft., which means that for all practical purposes the facility can be used at virtually every navigable stage of the river. The site of the transfer just south of Chester also is in the area of year-round navigation on the Mississippi.


**THE SCOTT STATION OFFICE, where the joint school is conducted, was enlarged to make room for more students.**


**A GROUP OF RECENT students along with the instructor, T&NO officers and officers of the trade school.**

# School for Agents on T&NO

The satisfactory completion of a novel course in Station Agent Management by five trainees in the T&NO station at Scott, La., will bring to 255 the number of students on this railroad who have finished this educational program and been placed in railroad jobs. The school was originated by the cooperation of the Lafayette division of the T&NO and the Southwestern Louisiana Trade School, which operates under the Louisiana State Department of Education.

The 900-hour course began in 1946, when A. J. Hebert, agent-telegrapher of the T&NO at Scott, agreed to take in ten trainees who were eligible for training under the G.I. Bill. Since that time, the office in the Scott station has been enlarged and renovated so that as many as 31 trainees can now be accommodated in two six-hour shifts, running continuously from 7:00 a.m. to 7:00 p.m.

Mr. Hebert has been acting as an instructor since 1925, when he began taking in two or three young men to work as students of telegraphy under his supervision. He did this unofficial sort of training just as a hobby throughout his station assignments from the early 1920's until 1942, when the railroads were hit by the manpower shortage. He helped meet the shortage by training 56 young women to fill jobs as railroad telegraphers.

The course that Mr. Hebert teaches includes all phases of station management. The trainees are instructed in telegraphy, transportation rules, the handling of inbound and outbound freight, credits and records—in short, everything that an agent must know; but the course does not stop there. His constant efforts to make better men as well as better railroad agents out of his apprentices, have won for him a Human Relations award, and great respect from his "boys" and from his community.

The success of this unusual undertaking by a school and a railroad is attested by the fact that all those satisfactorily completing the course are employed by railroads in responsible positions. Many of the earlier students have received promotions since they began work secured through this training course.

This being something out of the ordinary, it is impossible for the state supported trade school to furnish texts on rules, tariffs, etc., hence these are supplied by the railroad. The trade school furnishes the instruments, pencils, paper and typewriters. The railroad also provides electricity, extra forms which may be spoiled while teaching, and gas and water.

The training period is rather long, but having one group in the morning and one in the afternoon allows the trainees to find part-time jobs to help them through school. The graduates are taught to keep with them a small notebook in which to keep notes on questions that arise, which they are unable to answer and which are not of an urgent nature, and to report back to the school for the answers. Questions of an urgent nature are handled with the school by U.S. mail, telegraph or telephone. The students are given the understanding that even though they are no longer enrolled they have not severed their training or source of advice from the school. This works very well, because both the graduate and his employer benefit from this interchange of questions and information.

To deal better with these young men, Mr. Hebert is enrolled at Southwestern Louisiana Institute at Lafayette, La. He has completed courses in management and labor relations, industrial sociology, and conference methods, and is presently taking a course in trade and job analysis. This is done at his personal expense and on his own time.

## People in the News

(*Continued from page 18*)

Dr. Leonard has been a member of F.R.P.'s executive council since 1947, and Mr. Deegan had been president since 1948. In a statement issued when the changes were announced, Mr. Young said:

"In relinquishing the position of chairman, I am not giving up my interest in or active support of the F.R.P. On the contrary, I consider the need for this organization is greater now than when we formed it back in 1947. I believe more and more railroad men, shippers, suppliers and investors are sharing that view. The Federation has a major role to play in the progress of the industry and I plan to be even more active in its future than I have been in its past."

## Anniversaries

# CNR To Display Mobile Museum

### Three old locomotives and six cars will house hundreds of exhibits pertinent to Canadian railroading from 1836

The Canadian National has completed, and will display this summer, what is said to be the only mobile museum in the world. It consists of three locomotives and six cars, which are themselves museum pieces, and will contain hundreds of exhibits related to railroading in Canada from 1836 to the present.

The train, which will be open for inspection at Montreal from April 24 to 29, will make its first official run on May 16 from Toronto to Aurora, commemorating the 100th anniversary of operation of the first steam locomotive in Ontario. In July it will tour eastern Quebec, observing the centennial of the St. Lawrence & Atlantic, and from August 28 to September 12 it will be on view at the CNR Exhibition in Toronto. Later in September it will move from Toronto to Niagara Falls and Sarnia over lines of the Great Western, which also celebrates its 100th birthday in 1953. The train will be used similarly for other centennials and like events. While on exhibition it will be staffed by retired railroaders dressed in the style of costume worn by crews one hundred years ago.

Authenticity of equipment, furnishing and mementos displayed has been established by research extending over the past three years. Mogul No. 674 of 1899, with a 2-6-0 wheel arrangement, oldest locomotive still operating on the CNR, will haul the train. Other motive power will be wood-burner No. 40, dating from 1872, first standard-gage locomotive ordered by the Grand Trunk, and a saddle tank switcher of 1894, with its water tank straddling the boiler instead of being carried in the tender. In addition to an old dining car, one sleeping car and a coach, all restored to their original appearance, the consist will include three baggage cars of 1866, 1877 and 1879 vintage, to be used for museum halls.

The halls will house in permanent display exhibits ranging from tickets, lanterns, rails, Bible racks and pictures to the power plant of the first diesel-electric car in North America. Special sections will be devoted to pioneer railroads, steamships, telegraphs, express and motive power. A "family tree" will trace the growth of 265 pioneer railroads, from Canada's first steam road opened in 1836, to the present 24,200-mile CNR system, largest on the continent.

### Raleigh-Portsmouth Rail Connection 100 Years Old

April 19 was the 100th anniversary of completion of the first direct, unbroken railroad connection between Portsmouth, Va., and Raleigh, N.C. On April 19, 1853, connection was made at Weldon, N.C., between the lines of the Seaboard & Roanoke and the Raleigh & Gaston, both units in the present system of the Seaboard Air Line. The R&G, which ran northward from Raleigh to the Roanoke river at a place called Gaston, built the 12-mile connecting line eastward from Gaston to Weldon for $175,000, the cost being shared by both railroads.

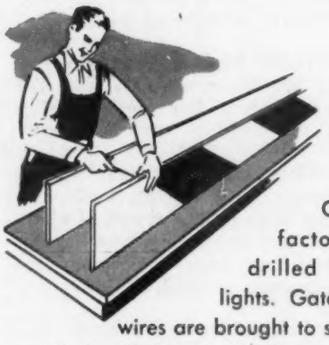
## Organizations

The **Car Department Association of St. Louis** will honor the **Superintendents' Association, St. Louis-East St. Louis Terminal District,** at its April 28 meeting, in the ballroom, Hotel DeSoto, St. Louis, Mo. A.

**THE BRASS BIBLE RACK (left), was standard equipment in Central Vermont coaches a century ago, when the Vermont legislature decreed that conductors read a portion of Scripture to passengers traveling on Sundays. It will be among the permanent exhibits in the Canadian National's mobile museum. Oldest car in the museum train is a coach (interior view above), an exact replica of an 1860 model built in the Point St. Charles shops of the Grand Trunk in 1859. Its features include wood-burning stoves and shutters.**

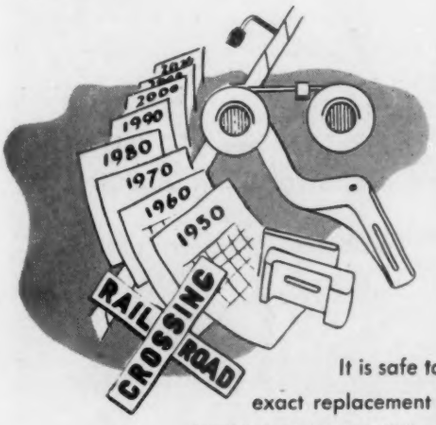
# MODEL 10 *automatic signals*

## "Top Rated" by the men who *specify* them
## . . . *install* them
## . . . *maintain* them



Gate arms are factory wired and drilled for mounting lights. Gate arm light unit wires are brought to special terminal blocks. Light units can be mounted and connected in a few minutes, without special tools.

Model 10 units are **furnished complete.** No time is wasted at point of installation, making units fit, or doing unexpected wiring. Flashing light units are shipped complete with hoods and backgrounds assembled, each in a carton.




It is safe to say that exact replacement parts for WRRS Model 10's will be available always — 10, 20, 30, or 50 years from now.

**WRITE FOR BULLETIN 748-RA453**


Talk to any of the men who have a hand in grade crossing safety. They'll tell you plenty of reasons why they prefer Model 10 protection.

Officials will cite the unrivaled safety record set by thousands of Model 10's guarding busy railroad-highway crossings in America and in foreign countries: *not a single accident has ever occurred as a result of operation failure on the part of these signals.*

Field men who install Model 10's like the fact that WRRS makes the job easy. Factory assembly of components, and intelligent packaging of units save time — speed installation to completion.

Maintenance men praise Model 10's trouble-free, all weather operation, easy inspection and servicing. Replacement parts readily obtainable, are precise duplicates of originals. They fit perfectly.

## *Wherever You Go*

Model 10's are rated "first" by the men concerned with "safety first."

**WESTERN RAILROAD SUPPLY CO.**
2428 S. Ashland Ave., Chicago 8, Illinois

## *Model 10*

AUTOMATIC GRADE CROSSING SIGNALS
PRODUCT OF
WESTERN RAILROAD SUPPLY COMPANY
CHICAGO 8, ILLINOIS

LEADING MANUFACTURER OF GRADE CROSSING SAFETY DEVICES — MAKER OF RAILWAY SIGNALING ACCESSORIES

H. Woerner, superintendent of the Baltimore & Ohio, will speak on "Meeting the Challenge of Present-Day Competition."

The **Railroad Enthusiasts, Inc., New York Division,** will hold its next meeting on April 24 at the YMCA Auditorium, 4th floor, Pennsylvania Station, 8th avenue, New York. "Safety and Protection of Person and Protection," will be the subject of an address by Lieut. John R. Tucker of the Pennsylvania Station. The Association of American Railroads will present a movie entitled, "Railroad Special Agent," and a movie sponsored by the Budd Company, "Clear Iron," also will be shown.

Ernest C. Pierre has been named chairman of the standing rate committee of the **Trans-Continental Freight Bureau** at Chicago. He succeeds M. F. Edbrooke whose appointment as chairman of the bureau was detailed on page 19 of the April 13 *Railway Age*. Mr. Pierre has been a member of the committee since January 1945. Prior to that he held numerous positions in the freight traffic department of the Santa Fe.

The **Northwest Shippers Advisory Board** will hold its 104th regular meeting at Aberdeen, S.D., on April 30. Carl Bahmeier, secretary of the South Dakota Bankers Association, will be guest speaker at the noon luncheon session. Special sleeping car service will be operated by the Milwaukee between Minneapolis and Aberdeen to accommodate board members attending the meeting.

# Equipment & Supplies

FREIGHT CARS

## 6,679 Freight Cars Delivered in March

March deliveries of new freight cars for domestic use totaled 6,679 units, compared with 7,780 in February and 8,159 in March 1952, the American Railway Car Institute and the Association of American Railroads have announced jointly.

Orders for 3,379 new freight cars for domestic use were placed in March, the announcement added, and the backlog of cars on order and undelivered on April 1 was 68,553. A breakdown of cars ordered and delivered in March and of cars on order April 1 appears in the accompanying table.

| Type | Ordered Mar. '53 | Delivered Mar. '53 | On Order & Undelivered April 1, '53 |
|---|---|---|---|
| Box—Plain | 1,400 | 2,350 | 16,211 |
| Box—Auto | 0 | 0 | 500 |
| Flat | 4 | 159 | 3,347 |
| Gondola | 200 | 997 | 16,848 |
| Hopper | 1,050 | 1,836 | 16,598 |
| Covered Hopper | 34 | 448 | 5,452 |
| Refrigerator | 250 | 254 | 2,981 |
| Tank | 431 | 499 | 5,204 |
| Caboose | 10 | 6 | 164 |
| Other | 0 | 130 | 1,248 |
| TOTAL | 3,379 | 6,679 | 68,553 |
| Carbuilders | 2,925 | 4,952 | 39,809 |
| Railroad Shops | 454 | 1,727 | 28,744 |

**THIS FIRST LOCOMOTIVE to run in Cuba is on exhibition in Central Station at Havana. First put on the line of the Matanzas Railroad in November 1843, old Number One, named "La Junta," was built by Rogers, Ketchum & Grosvenor at Paterson, N. J. Its sandbox is gaily decorated with ballet figures in relief. It cost $6,700.**

The **Chicago & Eastern Illinois** has ordered 200 55-ton gondola cars to be built in its own shops. One hundred of these cars are to be built in 1953 and 100 in 1954.

The **Chicago, Indianapolis & Louisville** has ordered 30 70-ton hopper cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $266,910. Delivery is scheduled for late in the third, or early in the fourth, quarter of 1953.

The **Gulf, Mobile & Ohio** has ordered 300 95-ton ore cars from the Pullman-Standard Car Manufacturing Company.

The **Illinois Terminal** has ordered 10 cabooses from the St. Louis Car Company at an estimated cost of $150,000. Delivery is scheduled for late in the third quarter, or early in the fourth quarter, of 1953.

The **Louisville & Nashville** has ordered 250 95-ton ore cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $2,500,000. Delivery is expected during the first quarter of 1954.

The **Santa Fe** has begun rebuilding 800 refrigerator cars in company shops. The cars will be stripped and provided with entirely new steel bodies. When the program hits its stride, it is expected that about 15 cars will be completed each day. When it is concluded, the Santa Fe will have only steel-bodied refrigerator cars in service.

The **Wabash** has ordered 200 50-ton box cars from the American Car & Foundry Co. at an estimated cost of $1,694,192, and 100 50-ton gondola cars from its own shops at an estimated cost of $1,300,200. Delivery of the box cars is scheduled for the third quarter of 1953, and the gondola cars are to be delivered during the second half of the year.

LOCOMOTIVES

## NYC Orders 164 Diesel Units for $27,500,000

The New York Central System has ordered 164 diesel units at an approximate cost of $27,500,000. The NYC will receive 124 units and the other 40 are for the affiliated Pittsburgh & Lake Erie. When deliveries are completed by next fall, all Central service east of Cleveland, as well as all passenger service east of Detroit, will be fully dieselized.

Orders were placed as follows: Electro-Motive Division of General Motors Corporation — 80 1,500-hp. road-switchers and 34 2,250-hp. passenger units; American Locomotive-General Electric Companies—35 1,000-hp. switchers (all for the P&LE),

and 15 1,600-hp. road-switchers (including five for the P&LE).

After receipt of this equipment, the Central said, it will own 2,113 diesel units—more than any other railroad—with total horsepower of 2,758,900. This will amount to about 60 per cent of the horsepower necessary for complete dieselization of the system.

### PASSENGER CARS

The **Northern Pacific** has ordered eight passenger-train cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $1,623,094. Delivery of the equipment, which includes two parlor lounge cars, two de luxe coaches and four sleeping cars, is expected to begin in the third quarter of 1954.

### SIGNALING

The **Great Northern** has ordered equipment for installation of absolute permissive block signaling between Wahpeton, N.D., and Vance, 60 miles. Order was placed with the General Railway Signal Company.

The **Metropolitan Transit Authority** (Boston, Mass.) is to install block signaling and an automatic interlocking on the Revere Extension. Equipment was ordered from the General Railway Signal Company.

**Hugh Black, who has been appointed wire and cable specialist for the construction materials division of the General Electric Company, with headquarters at 5726 West 51st street, Chicago. Mr. Black will handle contacts with railroads in the division's north central district.**

## Supply Trade

### British Industries "Machine Tool Caravan"

A British "Machine Tool Caravan," valued at $100,000, set up in a baggage car of the New York, New Haven & Hartford, was on display at the Grand Central Terminal, New York, on April 10. The 14 tools in the caravan are arranged to operate under actual machine-shop conditions and are attended by factory-trained service men. They were outfitted by the International Machinery Division of British Industries Corporation, New York, and have no American counterparts. All are high-precision tools.

Following the press display at Grand Central, the Caravan left for appearances at New Haven, Boston, Providence, Syracuse, Buffalo, Cleveland, Detroit, Cincinnati, Pittsburgh and other major industrial centers. Attendance at the exhibit is by invitation.

**THE FIRST EIGHT BALTIMORE & OHIO EMPLOYEES to be selected for training that will prepare them for future opportunities began their 26-week training program this month at Baltimore. To be eligible for this new non-technical training program *(Railway Age*, March 9, page 12), employees must have at least five years' experience on the railroad and must not be over 35 years old. In the photograph are, left to right: William C. Prinn, Jr.; Kenneth R. Hanegan; George J. Bleul; Herman F. Niles; Victor P. Gairoard (instructor, who is a representative of the B&O's department of office methods and procedures); William Carder, Jr.; Donald E. Sheeran; William G. Moore; and Frank B. Findling.**

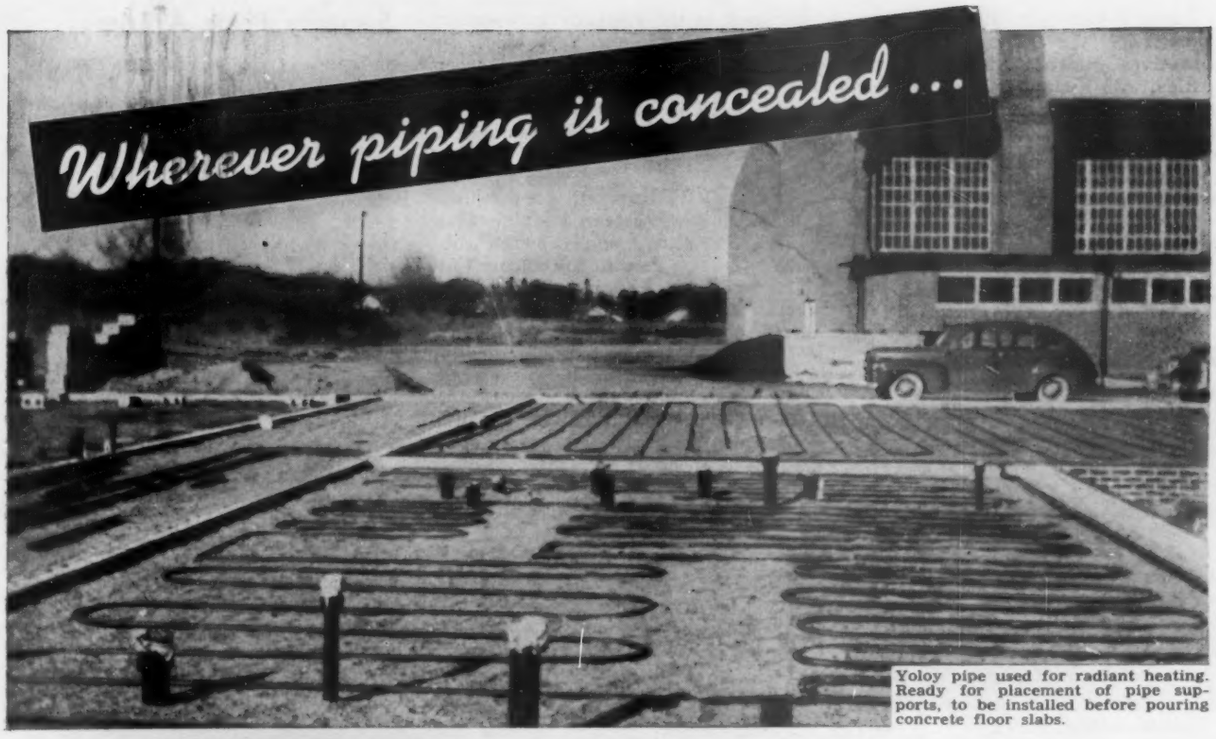
**D. O. Brooks** has been appointed sales manager of the Jacksonville (Fla.) factory branch of the **Electro-Motive Division** of **General Motors Corporation;** not sales manager of E-M.D., as was incorrectly stated in the March 23 *Railway Age*. **W. N. Fritts** is general sales manager of the division, and **P. R. Turner** is director of sales. Both continue to serve in these capacities.

**N. George Belury** has been elected a vice-president of the **American Brake Shoe Company.** Mr. Belury, who will continue as president of the engineered castings division, has been with the company since graduating from Purdue University in 1937. He worked in the sales department of the Brake Shoe and Castings division before transferring to engineered castings sales in 1947.

**F. M. Sloan,** formerly operations manager of the television-radio division of the **Westinghouse Electric Corporation,** has been appointed manager of the lamp division, with headquarters in Bloomfield, N.J. Mr. Sloan will succeed **Ralph Stuart,** who will remain with the company in a consulting capacity, following his resignation from full-time responsibility.

The **Topper Equipment Company** has recently completed and moved into a new manufacturing plant at Rahway, N.J.

**Charles F. Venrick** has been appointed manager, locomotive sales and *(Continued on page 104)*




Yoloy pipe used for radiant heating. Ready for placement of pipe supports, to be installed before pouring concrete floor slabs.

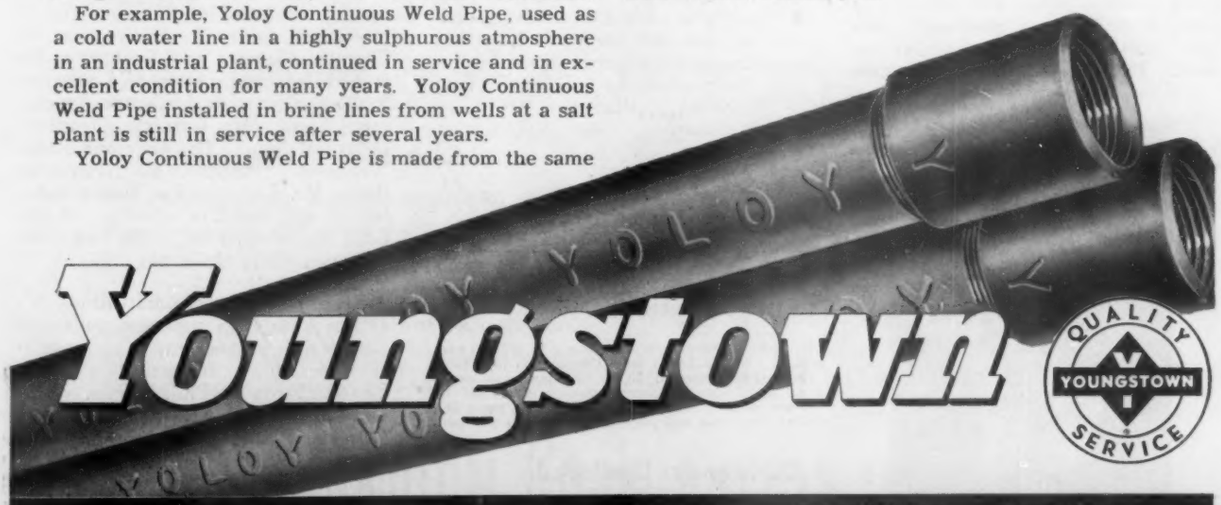
# use YOLOY continuous weld pipe

Yoloy Continuous Weld Pipe offers distinct advantages for radiant heating and snow removal. Its use is recommended whenever piping is concealed—in industrial plants, commercial buildings, hospitals, schools and residences.

In standard tests Yoloy steel has demonstrated that its resistance to atmospheric corrosion is four to six times greater than that of regular steels. In actual installations Yoloy Pipe has demonstrated that it has a high resistance to many other corrosive conditions.

For example, Yoloy Continuous Weld Pipe, used as a cold water line in a highly sulphurous atmosphere in an industrial plant, continued in service and in excellent condition for many years. Yoloy Continuous Weld Pipe installed in brine lines from wells at a salt plant is still in service after several years.

Yoloy Continuous Weld Pipe is made from the same nickel-copper steel composition that has proved so successful in service in the oil, mining, railroad, chemical, trucking and other industries where resistance to corrosion and abrasion is of prime importance. This pipe is easy to thread and fabricate with standard pipe tools. It can be electric or gas welded readily. It has high strength and high resistance to abrasion, shock and vibration fatigue. For further information, write or phone the Youngstown District Sales Office nearest you.




Youngstown

QUALITY YOUNGSTOWN SERVICE

**THE YOUNGSTOWN SHEET AND TUBE COMPANY** General Offices Youngstown 1, Ohio

*Manufacturers of Carbon, Alloy and Yoloy Steel* Export Office-500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - WIRE - PIPE AND TUBULAR PRODUCTS - CONDUIT - RODS - SHEETS - PLATES - BARS - RAILROAD TRACK SPIKES.

(*Continued from page 101*)
field service, for the **American Locomotive-General Electric Companies,** with headquarters at Schenectady, N.Y. Mr. Venrick was graduated from Dartmouth College in 1936, in which year he joined Alco as a special apprentice at Schenectady. He later worked successively as sales repre-

**Charles F. Venrick**

sentative, special assistant to the vice-president, and assistant district sales manager in the Chicago sales office and, in 1947, was transferred to the San Francisco office as district sales manager. He remained there until 1952, when he returned to Schenectady as assistant to the vice-president and contracting officer for the ordnance division, which position he held at the time of his recent appointment.

**Buckley M. Byers,** formerly assistant manager of steel sales of the **A. M. Byers Company,** has been appointed general manager of wrought iron sales. Mr. Byers, grandson of the firm's founder, joined the company in 1940, after he was graduated from Yale University. He worked as assistant manager of the Washington

**Buckley M. Byers**

office, and in 1942 joined the United States Navy as an ensign. He was discharged as a lieutenant in 1945 and returned to the company as assistant manager of the New York office. In April 1947 he was appointed manager of the export department and, on February 1, 1951, was appointed assistant manager of steel sales. He has been a director of the company since 1948.

**Edward T. Hansen,** vice-president of the **North Western Refrigerator Line Company,** wholly owned subsidiary of the **North American Car Corporation,** has retired after 25 years of service.

**Marvin J. Kolhoff,** whose appointment as manager of the locomotive and car equipment department laboratory of the **General Electric Company** was reported in last week's *Railway Age*, succeeds **E. H. Horstkotte,** who has retired. Mr. Kolhoff joined General Electric on the test engineer-

**Marvin J. Kolhoff**

ing program in 1939 and was appointed requisition engineer in the locomotive and car equipment department in 1942. He was appointed administrative assistant of the control engineering division in 1946 and five years later was named assistant engineer of the laboratory, the position he held at the time of his recent appointment.

# Securities

## Authorization

**UNION** (Pittsburgh).—To issue a $7,550,000 note to the United States Steel Corporation to replace an existing note of $6,800,000 and as evidence of additional advances made to the road on open account (*Railway Age*, March 30, page 27). The new note will bear interest at 3¼ per cent.

## Dividends Declared

**ELMIRA & WILLIAMSPORT.**—$1.19, semiannual, payable May 1 to holders of record April 20.

**GEORGIA R.R. & BANKING.**—$1.75, quarterly, payable April 15 to holders of record April 1.

**WESTERN PACIFIC.**—common, 75¢, quarterly, payable May 15 to holders of record May 1; 5% preferred A, $1.25, quarterly, payable May 15, August 17, November 16, February 15, 1954, to holders of record May 1, August 3, November 2 and February 1, 1954.

## Security Price Averages

| | Apr. 14 | Prev. Week | Last Year |
|---|---|---|---|
| Average price of 20 representative railway stocks | 65.30 | 64.98 | 58.12 |
| Average price of 20 representative railway bonds | 93.83 | 93.52 | 93.08 |

# Railway Officers

**EXECUTIVE**

## A. W. Ledbetter Becomes New CofG Chairman

As reported in *Railway Age* April 13, **Allison W. Ledbetter** has been elected chairman of the board of the Central of Georgia at Savannah. Mr. Ledbetter was born in Rome, Ga., and attended Kentucky Military Institute, Louisville. He has been in the con-

**Allison W. Ledbetter**

tracting business for 27 years and is prominent in road construction in Georgia, Alabama and Tennessee. He is president and owner of Ledbetter-Johnson Company, Ledbetter Trucks, Inc., Ready Mix Concrete Company, Industrial Supply Company and Rome Warehouse Company, all located in Rome. Mr. Ledbetter has been a member of the board of directors of the CofG since April 30, 1945, and vice-chairman since July 21, 1950.

**Henry W. Large** and **James W. Oram** have been promoted to assistant vice-presidents, traffic, and operation—personnel, respectively, of the PENNSYLVANIA at Philadelphia. (*Railway Age*, April 6). Mr. Large was born in Philadelphia July 5, 1905; attended Princeton University (B.S., 1928), and entered railroad service in November 1928 with the PRR. His experience includes service as freight representative, district freight agent at Washington, division freight agent at Cincinnati, general coal freight agent at Chicago, and freight traffic manager at Detroit. He has been general coal

*Here's why the railroads*

# MAKE IT STAINLESS!

**Strong, lightweight** passenger cars with structural members and side paneling of stainless steel have made possible new speed, safety and economy.



**Corrosion-resistant** stainless steel tank cars, good for years of rugged service, facilitate shipment of foods, beverages and chemicals.



**Bright, beautiful** stainless steel trim and fixtures add new luxury to bar, dining and lounge cars.



**Compact, easily cleaned** stainless steel galleys help cut the cost of dining car operation, protect passenger health.

The great majority of steel's hundreds of applications in modern, high-speed trains demand one or all of three specific qualities: corrosion resistance, beauty and high strength.

That's why today, from locomotive to observation car, more and more railroads are saying, "*make it stainless.*"

Virtually indestructible by corrosive action, stainless steels defy the effects of air, water, food, fumes and chemicals. They can be machined, formed and fabricated—and their surfaces polished satin-smooth or mirror-bright. Grades of stainless are available to meet a wide range of mechanical and heat-resistant requirements.

Stainless steels are cutting operating and maintenance costs on an ever-growing number of railroads, bringing new beauty and safety to an ever-growing number of applications. For complete information contact your supplier.

*The finest stainless steels are made with Vancoram ferro chromium, ferrochrome-silicon and ferro titanium.*

## VANADIUM CORPORATION OF AMERICA

*Make it better...make it stainless!*

VANCORAM BRAND

420 Lexington Avenue, New York 17, N.Y.

DETROIT • CHICAGO • CLEVELAND • PITTSBURGH

Producers of alloys, metals and chemicals

traffic manager at Philadelphia since 1948.

Mr. Oram was born at Shamokin, Pa., May 12, 1909; attended Princeton (A.B., 1932) and the University of Pennsylvania Law School (LL.B., 1935). He began railroad service in

**Henry W. Large**

1935 in the legal department of the PRR. After successive promotions in that department, where he specialized

**James W. Oram**

in employee relations, he was appointed assistant chief of personnel in 1942 and chief of personnel in 1947.

**Robert W. Purcell,** vice-chairman and vice-president (law) of the Alleghany Corporation and CHESAPEAKE & OHIO at New York, has resigned to assume the presidency of Investors Diversified Services, Inc., parent company of the nation's largest investment company group, at Minneapolis, Minn. Mr. Purcell succeeds **Earl E. Crabb,** who will remain as chairman of the I.D.S. board. Mr. Purcell was born at Watertown, N.Y., on October 24, 1911, and attended Cornell University (A.B. and LL.B. 1935). He began his career with White & Case, New York, in 1935 and remained with that firm for three years. Mr. Purcell became acting general counsel of the C&O in September 1943 and was appointed general counsel in November 1944; vice-president and general counsel in June 1945; and vice-president (law) in April 1946.

**Robert W. Purcell**

Mr. Purcell was appointed also vice-chairman of the C&O in April 1947. He has been vice-chairman of Alleghany Corporation since February 1947.

**C. A. Andrews,** vice-president and comptroller of the LEHIGH & NEW ENGLAND at Bethlehem, Pa., has retired after 40 years of service. (*Railway Age*, March 9). Mr. Andrews was born at Walnutport, Pa., October 3, 1883, and entered railroad service in 1901 as stenographer and clerk with the Philadelphia & Reading (now Reading). From

**C. A. Andrews**

1906 to 1913 Mr. Andrews was out of railroad service, but in the latter year he joined the L&NE and held various clerical and accounting positions until 1926, when he became auditor. He was appointed general auditor in 1928, comptroller in 1938, and vice-president and comptroller in December 1947.

**Frank K. Mitchell,** manager of equipment of the NEW YORK CENTRAL SYSTEM, has been appointed assistant vice-president—equipment, with headquarters as before at New York. Mr. Mitchell continues to have jurisdiction over maintenance and engineering services for all rolling stock. The position of manager of equipment has been discontinued. **Vernon L. Nelson,** assistant comptroller, has been appointed to the new position of assistant vice-president — management services, at New York. In the operating department streamlining, Mr. Nelson becomes the executive officer directly in charge of various important services—other than maintenance of equipment, maintenance of way, and transportation—centered in the department. Mr. Nelson will have direct jurisdiction over operating department budgets, statistical services, inventory control, station services, planning and analysis, and industrial engineering studies. His counterpart in the operating department will be **Augustus Hart,** who, as assistant vice-president — transportation, will have staff responsibilities regarding all matters of a transportation nature.

Mr. Mitchell was born at Indianapo-

**Frank K. Mitchell**

lis, Ind., on November 17, 1894, and attended Purdue University (B.S. in E.E., 1917 E.E., 1923). He entered railroad service as an electrician with the Cleveland, Cincinnati, Chicago & St. Louis (NYC) at Beech Grove, Ind., on December 18, 1918, and later served as draftsman, service test engineer, assistant to superintendent motive power, master mechanic, and assistant superintendent of equipment. Mr. Mitchell was appointed assistant to general superintendent motive power of the NYC in October 1940, assistant general superintendent motive power and rolling stock in February 1941, general superintendent motive power and rolling stock in April 1946, and manager of equipment in January 1949.

## FINANCIAL LEGAL & ACCOUNTING

**Charles A. Helsell,** general solicitor of the ILLINOIS CENTRAL, has retired after 42 years of service. He has been succeeded by **John W. Freels,** assistant general solicitor. **Herbert J. Deany,** general attorney, has also

# SIDETRACKING A $5,000 ANNUAL EXPENSE

Some of the best reasons for powering locomotives with Caterpillar Diesel Engines are written in ledger books.

Read, for instance, the entry in the books of the Salt Lake, Garfield & Western Railway Co., Salt Lake City, Utah. The road recently purchased two 44-ton G.E. locomotives, each powered by two Cat* D17000 Engines. Estimated annual savings over former electric units: *$5,000 a year!*

But money isn't everything. How about availability?

"They are giving very efficient service," reports A. S. Frederickson, superintendent of the S.L.G.&W.

Caterpillar Diesels provide steady power for both on-track and off-track equipment. Because of the long, productive life built into them, they are ready to move when you are. It was the efficient operation of a Caterpillar D4 Tractor which led the S.L.G.&W. to buy its Cat-powered locomotives.

Your dealer can show you these Diesels in 12 sizes up to 500 HP and 315 KW. Leading manufacturers can supply them in locomotives, locomotive cranes, ballasters, tampers, cribbers, rail testing equipment, shovels, air compressors, and many other machines. Be sure to specify *Caterpillar* Engines in the equipment you buy.

CATERPILLAR, Peoria, Illinois.

**CATERPILLAR***

*Both Cat and Caterpillar are registered trademarks—®

**NAME THE DATE... YOUR DEALER WILL DEMONSTRATE**

been promoted to general solicitor. **Robert Mitten,** special attorney, has been promoted to general contract attorney. **Erle J. Zoll, Jr.,** commerce counsel in charge of rates and related matters, has been named general commerce attorney. **Harold E. Spencer,** assistant general attorney, has been advanced to general attorney. **John**

**John W. Freels**

**W. Foster,** special attorney, has been named general attorney, and **Edward J. Wright,** tax attorney, has been appointed assistant general attorney.

Mr. Helsell joined the IC as district attorney at Fort Dodge, Iowa, in 1911. In 1934 he was named general attorney at Chicago, and has been general solicitor since 1942. A graduate of the University of Michigan—from which he received his B.A. degree in 1904, and an LL.B. degree in 1906 Mr. Helsell practiced law with his father's firm in Fort Dodge prior to joining the IC.

Mr. Freels came to the road in 1933 as local attorney in Cook county, Ill.

**Herbert J. Deany**

In 1938 he was named general attorney and in 1951 was promoted to assistant general solicitor. A graduate of the University of Illinois, he practiced law in East St. Louis and served as state's attorney and master-in-chancery of St. Clair county.

Mr. Deany became a stenographer in the land and tax department in 1917. He transferred to the law department in 1922 as investigator. In 1926 he was advanced to assistant local attorney for Cook county and in 1938 became local attorney. His appointment as general attorney came in 1947. He received his law degree from the Chicago Kent College of Law.

**E. J. Weber,** vice-president of the MARYLAND & PENNSYLVANIA at Baltimore, also has been elected secretary, succeeding the late **Thomas H. Fitchett.**

**Robert Douglas Armstrong** has been appointed associate comptroller of the CANADIAN NATIONAL at Montreal effective June 1. **T. J. Gracey,** comptroller, is due to retire under the company's pension plan next year. Mr. Armstrong, 36, and a native of Ottawa, is director of finance and administration for A. V. Roe, Ltd.,

**Robert Douglas Armstrong**

Toronto, where he has initiated and installed accounting systems for aircraft and gas turbine development, and tooling and manufacturing on a large scale. He has engaged in financing operations, contract negotiations and installation of capital budget and other accounting systems.

## TRAFFIC

**Denver L. Lacey,** district freight agent of the SOUTHERN at New York, has been appointed assistant general freight agent at New Orleans, succeeding **Lewis E. Reynolds,** who has retired after more than 46 years of service. **J. J. Hubbard,** division freight and passenger agent at Danville, Va., has been named general agent at Baltimore, succeeding **A. R. Gould,** who has retired after over 43 years of service. **George E. Green, Jr.,** district freight agent at New York, has been appointed general agent, freight and passenger departments, at Rochester, N.Y., succeeding **I. I. Norris,** who has retired after more than 43 years of service. **Joseph E. Todd,** district freight agent, has been named division freight agent, with headquarters as before at Sheffield, Ala., succeeding **John L. Cahoon,** who has retired after more than 48 years of service. **Kenneth B. Hill,** commercial agent, has been named district freight agent, with headquarters as before at New York, succeeding Mr. Green. **Robert H. Baily,** commercial agent at Washington, D.C., has been promoted to district freight agent at New York. **K. E. Epps,** traveling passenger agent at Knoxville, Tenn., has been named district passenger agent at Winston-Salem, N.C., succeeding **W. F. Cochrane,** who has retired after almost 36 years of service. **R. T. Pinkerton,** division passenger agent at Charlotte, N.C., has been transferred to Winston-Salem, N.C., succeeding **C. C. Fulp,** who has retired after 43 years of service. **E. C. Littleton,** assistant general passenger agent at Atlanta, succeeds Mr. Pinkerton as division passenger agent at Charlotte. **W. W. Williams,** district passenger agent, has been appointed division passenger agent, with headquarters as before at Memphis, Tenn., succeeding **F. R. Bottenfield,** who has retired after more than 45 years of service. **C. J. Arban,** assistant general baggage agent, has been named general baggage agent, with headquarters as before at Atlanta, succeeding **H. T. Henderson,** who has retired after more than 43 years of service.

The SANTA FE has taken over the entire third floor of the Columbia building at 8th and Locust streets, St. Louis. **Lloyd Yarbrough,** general freight and passenger agent, heads the enlarged St. Louis traffic staff.

**C. E. Dudley** has been appointed district freight agent of the WABASH at Ottumwa, Iowa.

**R. E. Hollingsworth,** city passenger agent of the CHICAGO MILWAUKEE, ST. PAUL & PACIFIC at Des Moines, Iowa, since 1948, has been appointed district passenger agent at Los Angeles.

**C. J. Ploss,** assistant freight traffic manager of the CHESAPEAKE & OHIO at San Francisco, has been promoted to freight traffic manager there.

**Richard G. Graham** has been appointed district passenger agent of the CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC at San Francisco, succeeding **Albert Tansley,** retired (*Railway Age,* March 23).

**M. S. Hall,** coal traffic representative of the BALTIMORE & OHIO at Baltimore, has been appointed coal freight agent at Cincinnati.

The MINNEAPOLIS & ST. LOUIS has promoted five general agents to assistant general freight agents. They are **Milton C. R. Carlson,** who is in charge of merchandise traffic at Minneapolis; **R. J. Thomas,** at Cleveland;

# To get better prints... faster

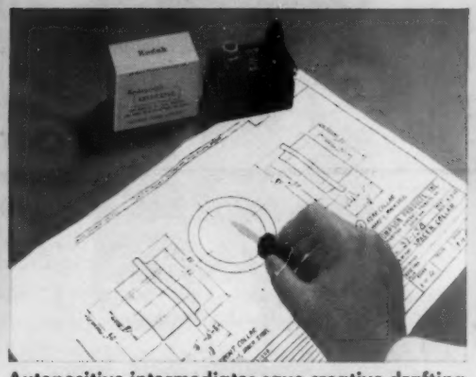
**Tapco Plant, Thompson Products, Inc. uses Kodagraph Autopositive intermediates in print production.**

**The Tapco Plant** knows full well that illegible shop prints pave the way for costly reading errors; knows, too, that Kodagraph Autopositive intermediates are low-cost insurance against such a possibility.

It therefore reproduces its more critical and complex jet and valve drawings on Kodagraph Autopositive Paper Translucent and thus obtains—quickly and easily—sparkling "masters" for print-making which have dense photographic black lines on an evenly translucent, premium-quality paper base; *which* will produce highly legible whiteprints time after time at *stepped-up* machine speeds.

Extremely fine-detailed drawings are reproduced on Kodagraph Autopositive Film, which captures the faintest detail . . . keeps close lines from "filling in". . . and produces top-quality photographic intermediates which have extremely fast print-back speeds.

**No negative step . . . no darkroom handling.** Kodagraph Autopositive Paper and Film are handled in exactly the same manner . . . produce positive photographic intermediates *directly*. First, they are exposed in one of the Tapco Plant's direct-process machines—or in a photocopy unit. Then, they receive standard photographic processing. A fast, convenient room-light operation all the way. And no new equipment needed.



**Autopositive intermediates save creative drafting time.** Tapco Plant makes necessary changes in its basic designs without costly redrafting by (1) making Autopositive prints of the original drawing; (2) removing the unwanted detail from the Autopositive reproduction with eradicator fluid. Then, the draftsman has only to add the new detail . . . and a print-making master is ready. *One* which will produce highly legible prints without confusing "ghost" images in the eradicated area.

**Autopositive reclaims "unprintables."** Many old drawings that have lost line density or are soiled or torn are transformed into print-making masters by reproducing them on Autopositive Paper or Film. Stains and crease marks are dropped out . . . weak detail is made more legible—saving hours of redrafting. Autopositive Paper is also used to duplicate a variety of office records, non-translucent vendor prints, etc.

## Kodagraph Autopositive Materials

**"THE BIG NEW PLUS" in engineering drawing reproduction**

Write today for a free copy of "Modern Drawing and Document Reproduction." It gives complete details on the revolutionary line of Kodagraph Reproduction Materials, which you, or your local blueprinter, can process conveniently, economically.

**MAIL COUPON FOR FREE BOOKLET**

**EASTMAN KODAK COMPANY** 108

**Industrial Photographic Division, Rochester 4, N.Y.**

Gentlemen: Please send me a copy of your illustrated booklet giving the facts on Kodagraph Reproduction Materials.

Name_____ Position_____

Company_____

Street_____

City_____ Zone_____ State_____

Kodak
TRADE-MARK

**C. E. Husting,** at Kansas City, Mo.; **J. J. McGuinn,** at Cincinnati; and **L. A. Loken,** at Portland, Ore.

**E. F. Philbrick,** special assistant to vice-president, system passenger traffic of the SOUTHERN PACIFIC, has retired, after having served the company since 1903. **L. Gordon Crocket,** special representative, has been named special assistant.

## OPERATING

**George C. Randall,** manager of port traffic and district manager of the Car Service Division of the ASSOCIATION OF AMERICAN RAILROADS at New York retired on April 1 (*Railway Age*, March 12). Mr. Randall was born at Northfield, Vt.; was graduated from Norwich University, and entered railroad service in 1898 as a telegraph operator on the Boston & Maine, where he remained until 1900. Mr. Randall returned to the railroad industry in 1904 as chief dispatcher for the Colorado & Southern at Cheyenne, Wyo., subsequently becoming chief clerk to superintendent of transportation at Denver, and superintendent of trans-

**George C. Randall**

portation in 1913. In 1917 he joined the Army as a captain in the Quartermaster Corps. At the end of World War I, Mr. Randall entered the mining business, but joined the staff of the Car Service Division at Washington, D.C., in 1922, and served successively as district manager at Dallas, Birmingham and Boston. Mr. Randall was named chairman of the General Committee of the Operating-Transportation Division of the A.A.R. at Chicago in 1932; was appointed manager of port traffic at New York in 1939; and, in addition, became district manager at New York in 1946.

**Thomas E. Shufflebarger, Jr.,** has been appointed general industrial geologist of the SOUTHERN SYSTEM at Washington, D.C.

**Ralph R. Deahl,** freight traffic manager-sales of the NEW YORK, CHICAGO & ST. LOUIS at San Francisco, has been transferred to Chicago succeeding **Kenner S. Boreman,** who has been granted a leave of absence because of ill health. **William D. Kelley,** general freight agent at Cleveland, succeeds Mr. Deahl as freight manager—sales at San Francisco.

**Richard D. Searight,** passenger agent of the BALTIMORE & OHIO at Columbus, Ohio, has been appointed district passenger representative at Omaha, Neb., succeeding **W. H. Lawson,** who has left the road to engage in other business.

As reported in *Railway Age* March 30, page 28, **Morton S. Smith** has been appointed general manager of the Central region of the PENNSYLVANIA at Pittsburgh. Mr. Smith was born at Hughesville, Pa., July 1, 1906; attended Pennsylvania State College (B.S. in C.E., 1929), and entered railroad service in the summer of 1926 as chainman with the PRR, later becoming assistant on engineering corps, supervisor of track and division en-

**Morton S. Smith**

gineering, successively. After serving as division engineer of the Long Island at Jamaica, N.Y., from February to July 1943, Mr. Smith became superintendent of the Logansport division of the PRR in July 1943; superintendent freight transportation at Chicago in October 1944; superintendent, Philadelphia division, in March 1946; general superintendent transportation, Central region, in June 1951, and assistant general manager at Pittsburgh in December 1951.

**Captain Robert A. Clarke** has been appointed general manager of railway marine services of the CANADIAN NATIONAL at Montreal. Captain Clarke has been general manager of CN Steamships (West Indies) since 1946.

As *Railway Age* reported March 23, **T. L. Nichols,** general superintendent of the ATLANTA & ST. ANDREWS BAY, has been elected general manager in charge of operations. Mr. Nichols entered railway service with the Carolina & North Western in 1918, and later served with the Southern and the Norfolk & Western in both the mechanical and transportation departments. In 1936 he joined the mech-

**T. L. Nichols**

anical department of the A&StAB, being promoted to master mechanic in 1939. In 1943 he was appointed superintendent motive power, and a year later general superintendent.

**W. E. Tate** has been appointed general superintendent transportation of the Central region of the CANADIAN NATIONAL at Toronto (*Railway Age*, March 16). Mr. Tate was born at Hastings, Ont.; and has served as dis-

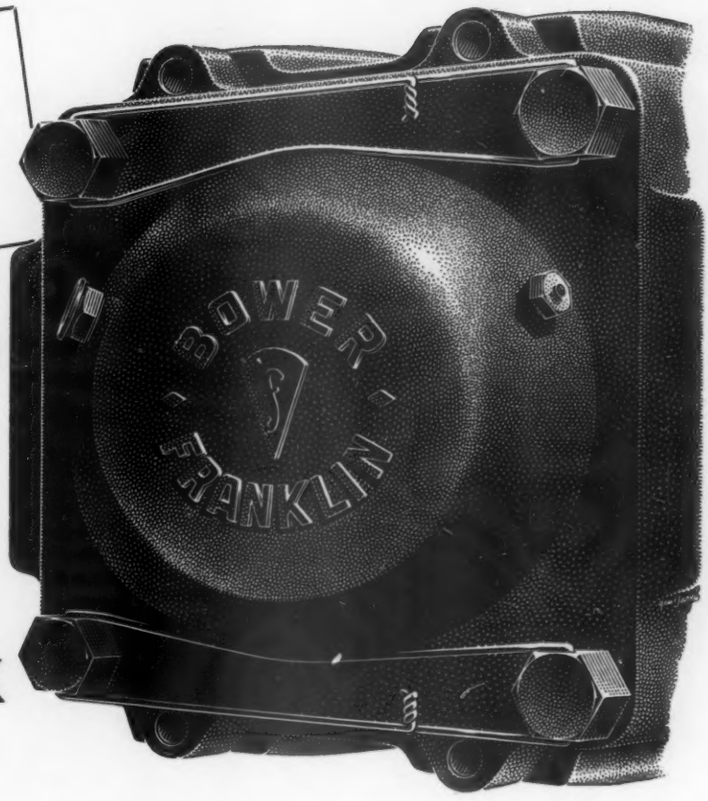
**W. E. Tate**

patcher at Belleville, Ont., trainmaster at Brantford, Ont., assistant superintendent at London, Ont., and superintendent transportation at Toronto.

As reported in *Railway Age* March 30, page 28, the NEW YORK CENTRAL has announced the following appointments: **Robert H. McGraw,** general manager, Lines West, at Cleveland; **Wilbur F. Davis,** general manager of the INDIANA HARBOR BELT and the CHICAGO RIVER & INDIANA (Central affiliates) at Gibson, Ind.; **Ernest C. Johnson,** general superintendent at Cleveland; **William B. Calter,** gen-

(*Continued on page 116*)

See it at
Atlantic City in June
SPACE 3 AND 4
SECTION I




**BOWER-FRANKLIN**

# roller-bearing journal box

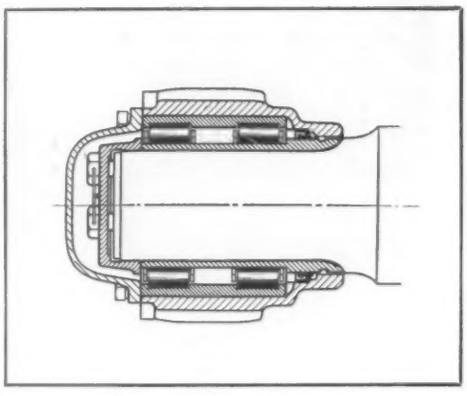
## for freight cars

The recently announced Bower-Franklin roller bearing journal box is being manufactured by Franklin Balmar Corporation, a wholly owned subsidiary of Franklin Railway Supply Company, and the bearings are being produced by the Bower Roller Bearing Company of Detroit.

Bower is one of the largest roller bearing manufacturers, and one of the few making both straight and tapered roller bearings. As a producer of bearings for heavy earth-moving equipment and for the steel industry, it has had long experience with bearings comparable in size to those used on freight cars.

Franklin equipment has been used on every major railroad in the country. In recent years, Franklin Balmar Corporation has manufactured many thousand journal boxes for solid as well as roller bearings.

Sales and application engineering are being handled by the Franklin Balmar Corporation. Additional information will be furnished on request.



**The Bower-Franklin journal box** shown here is of the pedestal type. Simplicity of design is an important feature. The bearing, consisting of two rows of straight rolls running in single inner and outer races, permits free lateral. The sturdy retainer assures perfect alignment of rolls under all conditions. The housing completely surrounds and protects the bearing.

FRANKLIN BALMAR CORPORATION

**FRANKLIN BALMAR CORPORATION**
WOODBERRY, BALTIMORE 11, MARYLAND
*CHICAGO OFFICE: 5001 North Wolcott Ave., Chicago 40*

# TM

## *New high in motive power availability*

The Mine Drag provides another setting for Train Master locomotive performance and value. Its 2400 horsepower and high traction motor capacity mean greater availability . . . more runs per day for higher utilization of motive power investment. Let's take a typical example . . .

A conventional 1600 horsepower, six-motor locomotive will take a .2% grade at 14.6 m.p.h. with 4500 trailing tons—about 50 cars of ore. On the same grade, with the same load, Train Master will take the hill at 22 m.p.h.—*50% faster.* That's a saving of nearly 1½ minutes a mile!

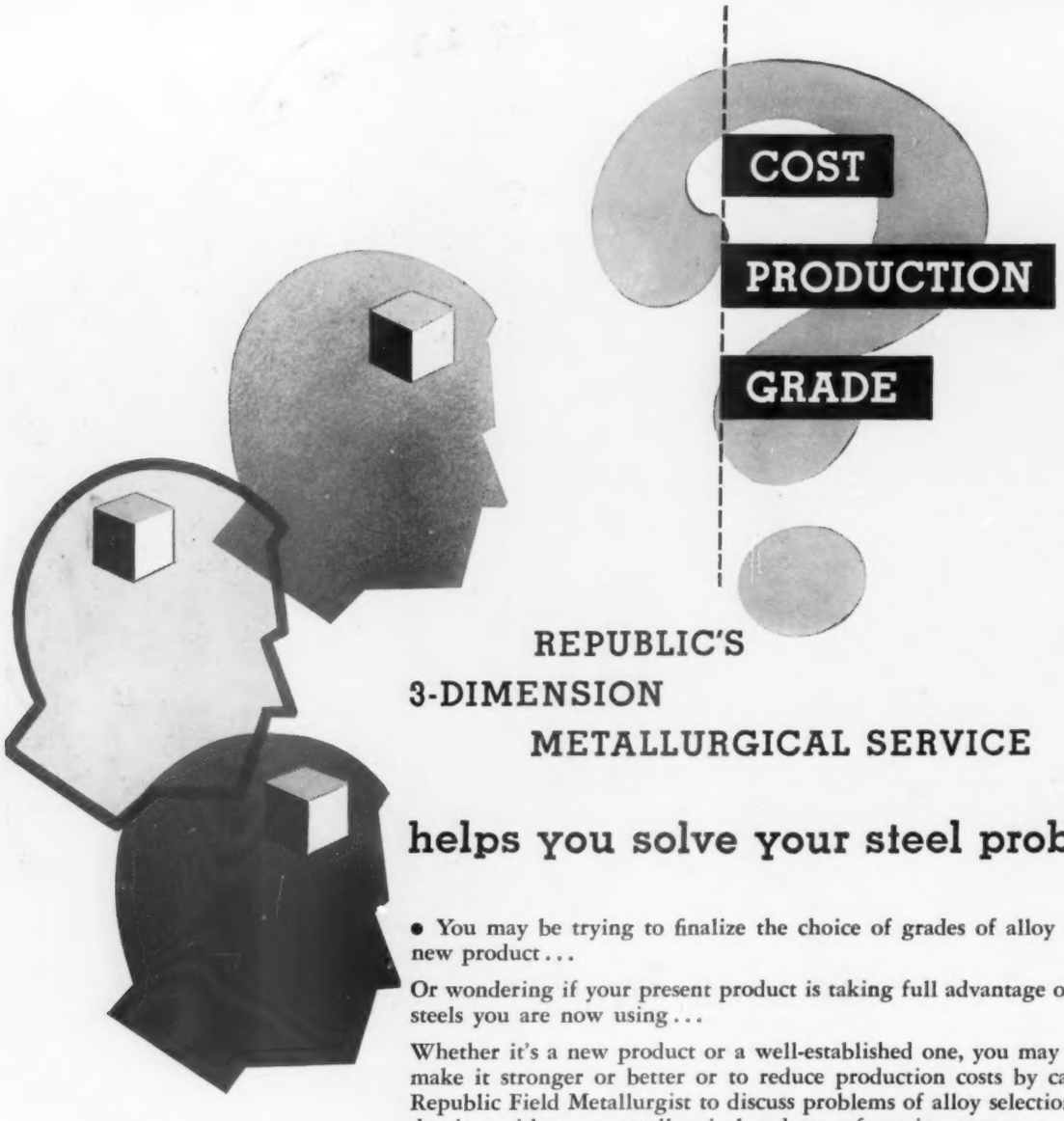
Six traction motors, total weight of 375,000 pounds *all* on drivers . . . give the Train Master the capacity and stamina to deliver high drawbar pull repeatedly and continuously in *all* heavy-duty services.

Always master of its train, the Fairbanks-Morse Train Master . . . the most useful locomotive ever built.

**FAIRBANKS-MORSE**

***a name worth remembering when you want the best***

DIESEL LOCOMOTIVES AND ENGINES • RAIL CARS AND RAILROAD EQUIPMENT • ELECTRICAL MACHINERY • PUMPS • SCALES • WATER SERVICE EQUIPMENT • HAMMER MILLS • MAGNETOS




# REPUBLIC'S 3-DIMENSION METALLURGICAL SERVICE

## helps you solve your steel problems

• You may be trying to finalize the choice of grades of alloy steel for a new product . . .

Or wondering if your present product is taking full advantage of the alloy steels you are now using . . .

Whether it's a new product or a well-established one, you may be able to make it stronger or better or to reduce production costs by calling in a Republic Field Metallurgist to discuss problems of alloy selection and production with your metallurgical and manufacturing men.

The Republic Field Metallurgist is backed-up in his recommendations to you by a Republic Mill Metallurgist and a Republic Laboratory Metallurgist. Together they offer a complete and extensive consulting service to steel users . . . Republic 3-Dimension Metallurgical Service. Available to you through your local Republic Steel sales office.

**REPUBLIC STEEL CORPORATION**
*Alloy Steel Division • Massillon, Ohio*
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N.Y.

LAB
FIELD MILL
**3-DIMENSION Metallurgical Service**

. . . combines the extensive experience and coordinated abilities of Republic's *Field, Mill* and *Laboratory* Metallurgists with the knowledge and skills of your own engineers. It has helped guide users of Alloy Steels in countless industries to the correct steel and its most efficient usage. IT CAN DO THE SAME FOR YOU.

*Republic* ALLOY STEELS

REPUBLIC STEEL

**Other Republic Products include Carbon and Stainless Steels—Sheets, Strip, Plates, Pipe, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing**


# Don't Risk Bearing Trouble Here


Our engineers will gladly work with you in the solution of your bearing problems. Confidential consultation. No charge—no obligation.

**Rollway Bearing Co., Inc.**
**Syracuse 4, N. Y.**

Up-grade hauling imposes a terrific strain on the commutator and pinion bearings of traction motor armature shafts. The sustained higher torque loads stimulate roller friction—engine room heat and blower air boost temperatures within the bearing compartments. Bearing seizure threatens . . . the odds on jammed armatures and locked driving wheels are increased.

Rollway's *right-angle design* and roller-riding bronze retainer minimize internal friction—generate less heat. Bearing failure becomes the exception, rather than the rule.

**ROLLWAY**
**BEARINGS**

*Complete Line of Radial and Thrust Cylindrical Roller Bearings*

SALES OFFICES: Syracuse Cleveland Houston Boston Detroit
Philadelphia Chicago Pittsburgh Los Angeles Toronto

(*Continued from page* 110)

eral superintendent, Lines East, excluding the New York area, at Syracuse, N.Y.; and **Percy W. Hankinson,** general manager of the TORONTO, HAMILTON & BUFFALO at Hamilton, Ont.

**Robert H. McGraw**

**Wilbur F. Davis**

**Ernest C. Johnson**

Mr. McGraw was born at Syracuse January 31, 1896, and entered railroad service September 13, 1915, as locomotive fireman with the NYC at Syracuse. He later served as assistant road

foreman of engines, locomotive engineman, road foreman of engines at Watertown, N.Y., and trainmaster at various locations, becoming assistant superintendent at Buffalo, N.Y., in 1943, assistant to vice-president at Chicago in July 1946, and general manager of the IHB and CR&I in August 1946.

Mr. Davis was born at Strattonville, Pa., in 1899 and entered railroad service in 1918 as a telegraph operator with the NYC at Cleveland, where he subsequently served as train dispatcher and extra chief dispatcher. He was appointed trainmaster at Columbus, Ohio, in 1941; assistant to assistant general manager at Cleveland in 1946; assistant superintendent at Chicago later that year; superintendent at Chicago in 1949, and assistant general manager, Lines West, and Ohio Central Lines at Cleveland in November 1950.

**William B. Salter**

Mr. Johnson was born at Elkhart, Ind., September 18, 1898, and entered railroad service with the NYC in April 1917 as stenographer at Elkhart. He later served as chief clerk to trainmaster and general yardmaster and as yardmaster and night general yardmaster there. Mr. Johnson was appointed terminal trainmaster at Collinwood, Ohio, in 1940; assistant superintendent of the Western division at Chicago in 1945; assistant superintendent at Toledo in 1946; division superintendent, Big Four, at Mattoon, Ill., in 1949; superintendent at Chicago November 1, 1950; and superintendent at Toledo January 1, 1953.

**Percy W. Hankinson**

Mr. Salter was born at New York July 5, 1906, and entered railroad service in 1925 as messenger with the NYC, later serving in various clerical and specialist positions. He was appointed assistant trainmaster at Buffalo in 1940; trainmaster at Welland, Ont., and Kalamazoo, Mich., in 1941; assistant superintendent at Chicago in 1946; superintendent at St. Thomas, Ont., in 1947; assistant general manager of the TH&B at Hamilton in 1948; and general manager of the TH&B in April 1949.

Mr. Hankinson was born October 13, 1902, at St. Thomas, and entered railroad service with the Michigan Central (NYC System) August 5, 1917, as callboy, subsequently serving as yard clerk, road brakeman, freight conductor, yardmaster, passenger conductor, and acting trainmaster. He was appointed trainmaster at St. Thomas November 1, 1945, and superintendent of the TH&B at Hamilton in July 1951.

As reported in *Railway Age* March 16, **E. P. Miller** has been appointed manager, port traffic, and district man-

# HYSTER PRESENTS...

## Two Completely NEW Lift Trucks!




The Ultimate in 4000-lb. Lift Truck Maneuverability



30" Free Lift
75" Turning Radius
38" Wide
82½" Collapsed Height (with 9' lift)

**THE UC-30**
Capacity, 3000 lbs. (24" load center) Length, only 74⅝"

**THE YC-40**
Capacity, 4000 lbs. (at 24" load center) Length, only 78¾"

### STREAMLINED AND FUNCTIONALLY DESIGNED FOR UNEQUALED PERFORMANCE IN CAR LOADING, WAREHOUSE AND ALL OTHER CLOSE-QUARTER OPERATIONS

Hyster now offers, in addition to the pneumatic-tired 4000-lb. YT-40 Lift Truck, a *new* lift truck in the 3000-4000-lb. class—*designed specifically for close-quarter operation!*

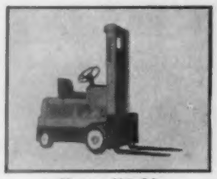
*The new Hyster YC-40* is smaller than the pneumatic-tired YT-40 because it is *functionally* designed to more compact dimensions, utilizing smaller cushion tires. *The YC-40 is recommended for those applications where it is not necessary to use pneumatic tires.*

*The new Hyster UC-30* is basically a YC-40 Lift Truck with a lighter counterweight, but with the same engine. Both incorporate advanced features not found in any other lift truck today! Call your Hyster dealer, or write for Catalog 1241 to:

**HYSTER COMPANY**
2932 N. E. Clackamas St, Portland 8, Oregon
1032 Myers St, Danville, Illinois


### Be Sure to Call HYSTER Before You Buy ANY Lift Truck!

**Hyster 20** for 1000-2000-lb. work requiring pneumatic tires.



**Hyster UC-30** for 3000-lb. close-quarter work. Cushion tires.

**Hyster YT-40** for 4000-lb. work requiring pneumatic tires.

**Hyster YC-40** for 4000-lb. work in close quarters. Cushion tires.

HYSTER

**HYSTER COMPANY** • **FOUR FACTORIES: Portland, Oregon; Danville, Illinois; Peoria, Illinois; Nijmegen, The Netherlands**

ager of the Car Service Division, Association of American Railroads, at New York. Born in Hume, Ohio, in 1904, Mr. Miller entered railroad service at 14 with the Lake Erie & Western (Nickel Plate). After six years in various clerical positions with that road, he joined the Detroit, Toledo & Ironton, where he eventually became

**E. P. Miller**

assistant to superintendent transportation. Mr. Miller joined the C.S.D. early in World War II, and was named assistant to manager of the Tank Car Section, which supervised emergency movement of oil to the Atlantic seaboard. Following the war, he was appointed assistant to manager of the Closed Car Section; was promoted to chief clerk of the C.S.D. in May 1948, and was appointed district manager at Boston in August 1948.

As reported in *Railway Age* March 30, **John D. Morris** has been appointed general manager, Western region, of the Pennsylvania at Chicago. Mr. Morris was born at Sykesville, Md., December 7, 1905; was graduated

**John D. Morris**

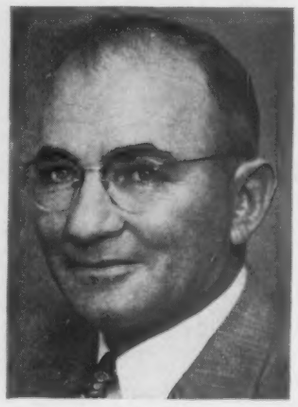
from the University of Maryland (B.S. in C.E., 1926), and entered railroad service in June 1926 as rodman with the PRR. After serving as assistant

supervisor track, supervisor track and division engineer, he was appointed superintendent of the Wilkes-Barre division in January 1942, transferring to the Panhandle division in January 1945, and to the Pittsburgh division in March 1948. He became assistant general manager at Philadelphia in January 1952.

## MECHANICAL

**L. Beckel** has been appointed master mechanic of the St. Louis Terminal division of the MISSOURI PACIFIC. He succeeds the late **U. F. Tihen.**

As reported in *Railway Age* March 16, **Gordie Stewart** has been appointed assistant chief mechanical officer of the FLORIDA EAST COAST at St. Augustine, Fla. Mr. Stewart was



**Gordie Stewart**

born in Andalusia, Ala., November 21, 1899, and began his railroad career with the Louisville & Nashville as telegraph operator October 11, 1917.

---

**C. E. Pond has been appointed general superintendent motive power of the Norfolk & Western at Roanoke, Va. (*Railway Age*, April 6, page 108). A biography of Mr. Pond was published in *Railway Age* February 16, page 62, in connection with his appointment as superintendent motive power.**

He subsequently served as locomotive fireman, engineman, fuel instructor, stationmaster and traveling engineer. Mr. Stewart went to the FEC as locomotive engineer in 1935, and was promoted to road foreman of engines in 1940, superintendent of air brakes in 1943, and superintendent of diesel maintenance and air brakes in 1952.

**H. C. Pottsmith** has been appointed superintendent work equipment of the CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC. Mr. Pottsmith, who will have headquarters at Chicago, has been master mechanic at La Crosse, Wis. He succeeds **C. E. Morgan,** who has been appointed superintendent of track welding at Chicago.

**Robert B. Hunt,** chief mechanical officer of the FLORIDA EAST COAST at St. Augustine, Fla., has retired (*Railway Age*, March 16). Mr. Hunt was born at Paris, Ky., February 21, 1880, and attended Kentucky State University (B.M.E., 1901). He entered railroad service in 1900 as bridge painter with the Louisville & Nashville and the following year became special

**Robert B. Hunt**

apprentice for the Cincinnati, New Orleans & Texas Pacific (Southern). Mr. Hunt joined the FEC as draftsman in 1902 and later served as mechanical engineer, master mechanic, acting superintendent motive power and machinery and superintendent motive power and machinery. On July 1, 1946, he was named chief mechanical officer.

**F. A. Benger,** assistant chief of motive power and rolling stock of the CANADIAN PACIFIC, has been appointed chief of motive power and rolling stock, with headquarters as before at Montreal, Que. Mr. Benger succeeds **William A. Newman,** whose death was reported in *Railway Age* March 16, page 30. Mr. Benger was born at Port Arthur, Ont., on July 29, 1892, and attended Queen's University, Kingston, Ont. (B.S. in M.E. 1913). He entered railroad service in the

(*Continued on page* 125)


## Why Railroads Specify

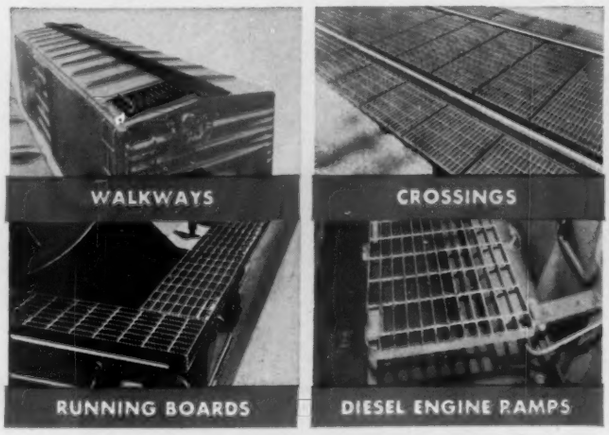
# BLAW-KNOX

***ELECTROFORGED®***

## STEEL GRATING

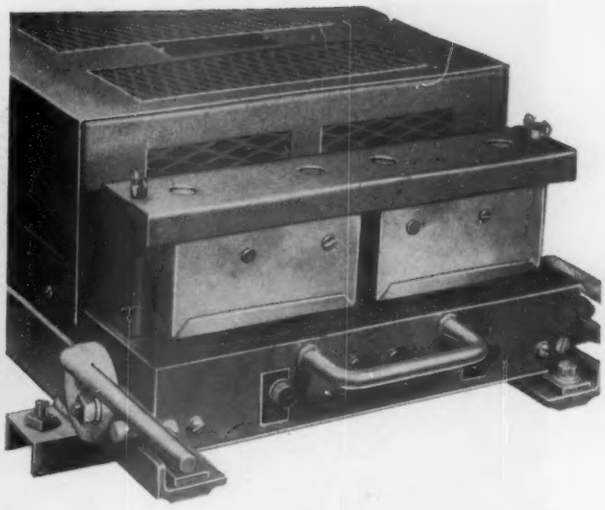
Any idea, material or equipment that promotes safety along with economy is of prime interest to practical railroaders. If you are interested in the widespread application of Blaw-Knox one-piece, skid-proof Steel Grating—

*Write for Bulletin No. 2365*




BLAW-KNOX COMPANY
GRATING DEPARTMENT
BLAW-KNOX EQUIPMENT DIVISION
Pittsburgh 22, Pa.

**BLAW-KNOX**



*This is the Vibrator Converter that . . .*

☑ **SAVES 60%**
**on cost of initial installation**

☑ **SAVES 50%**
**each year on maintenance**

☑ **Services itself en route**

**Patented C-D dual vibrator circuit with instantaneous automatic switch-over assures uninterrupted radio communications en route.**

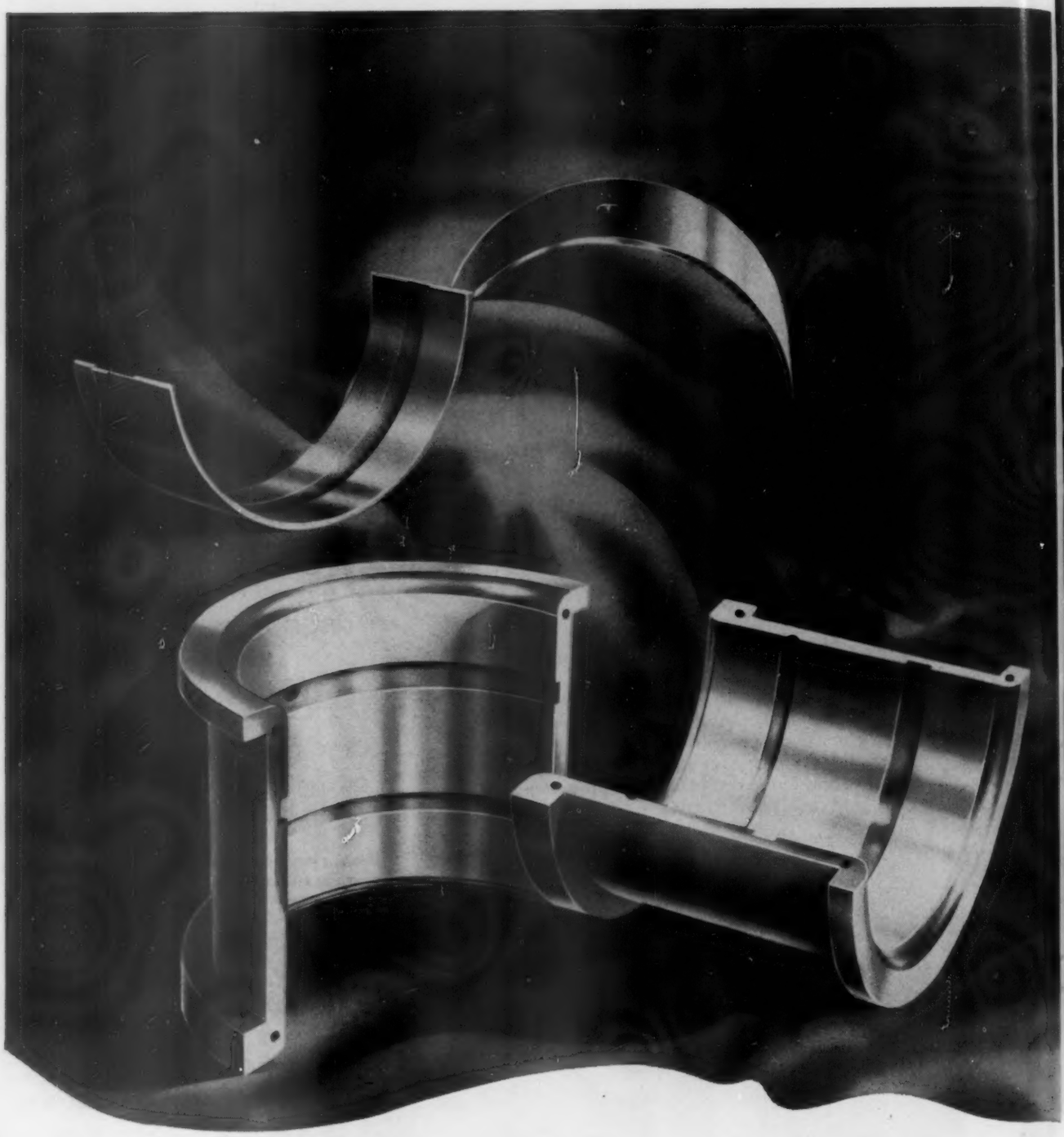
☑ *field-tested and approved by over 50 leading railroads**

*Complete list on request.

CONSISTENTLY **CORNELL-DUBILIER** DEPENDABLE

**VIBRATOR CONVERTERS WITH RAILROAD DEPENDABILITY**
**by the makers of world-famous C-D capacitors**

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE, R. I.; INDIANAPOLIS, IND.; FUQUAY SPRINGS, S. C.; AND SUBSIDIARY, THE RADIART CORP. CLEVELAND, OHIO



use *genuine* **BALDWIN**

BALDWIN BLH LIMA-HAMILTON

**BALDWIN**

(*Continued from page* 120)
summer of 1911 as a machinist apprentice in the Angus Shops of the CP at Montreal. After serving as

**F. A. Benger**

draftsman in the locomotive drawing office at Montreal, Mr. Benger went on loan to the Dominion Arsenal & Imperial Munitions Board on manufacturing and inspection of ammunition from August 1914 to October 1916. Upon his return to the CP at Montreal he served successively as acting engineer of tests, chief draftsman, assistant engineer and assistant mechanical engineer. Mr. Benger was appointed acting chief mechanical engineer at Montreal on February 1, 1941, chief mechanical engineer there on January 1, 1946, and assistant chief of motive power and rolling stock in January 1948.

**L. L. O'Brien,** division master mechanic of the CANADIAN PACIFIC at Farnham, Que., has been transferred to the Smiths Falls (Ont.) division, succeeding **R. Christie,** transferred.

**John D. Loftis,** assistant superintendent, Chicago division, of the CHICAGO, ROCK ISLAND & PACIFIC, has been named chief mechanical inspector for the railroad. His headquarters will remain in Chicago.

**Russell G. Henley,** general superintendent motive power of the NORFOLK & WESTERN at Roanoke, Va., has retired (*Railway Age*, April 6). Mr. Henley was born near Walkerton, Va., May 17, 1884, and served a five-year apprenticeship in the Richmond Locomotive Works. He joined the N&W as machinist at Bluefield, W. Va., September 5, 1905, and later served at various points as assistant roundhouse foreman, night roundhouse foreman, roundhouse foreman, foreman,

**Russell G. Henley**

general foreman and master mechanic, successively. Mr. Henley was appointed assistant to superintendent motive power in February 1924, superintendent motive power June 1, 1928, and general superintendent motive power in February 1941, all at Roanoke. He was chairman of the Committee on Safety Appliances of the Association of American Railroads for 19 years; chairman of the Committee on Electric Rolling Stock; and chairman of the Mechanical Division, A.A.R. (1944-1945).

## ENGINEERING

**A. E. McGruer,** electrical engineer, Eastern region, of the CANADIAN PACIFIC at Toronto, has been appointed general electrical engineer at Montreal,

succeeding **J. W. Hughes,** who has retired after 46 years of service. Mr. Hughes was born at Chatham Center, N.Y., September 28, 1886, and entered railroad service in 1907 as assistant electrical engineer of the CPR. He was appointed electrical engineer, Eastern lines, in 1916 and became general electrical engineer at Montreal in 1946.

**Roy E. Walworth,** special engineer in the land and tax department of the NEW YORK CENTRAL at Albany, N.Y., has retired, after more than 37 years of service. He has been succeeded by **Ralph D. Evans,** right-of-way engineer, who will continue to have headquarters at New York.

**C. T. Schwalb,** assistant engineer on the ATLANTA & ST. ANDREWS BAY, at Dothan, Ala., has been appointed chief engineer of the MISSISSIPPI EXPORT RAILROAD at Moss Point, Miss.

**Claude H. Hardwick,** division superintendent of the CHICAGO, ROCK ISLAND & PACIFIC at Des Moines, Iowa, has been appointed district maintenance engineer at El Reno, Okla.

**Robert A. Sharood,** chief engineer of the SAUDI-ARABIAN GOVERNMENT RAILROAD, and former chief engineer of the Alaska Railroad, has been appointed chief engineer of the QUEBEC, NORTH SHORE & LABRADOR.

**E. W. Smith** has been appointed assistant to chief engineer of the ST. LOUIS-SAN FRANCISCO at Springfield, Mo.

**A. O. Lagerstrom,** assistant superintendent buildings of the CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC, at Chicago, retired March 31.

**J. F. McCook,** assistant to vice-president of the NEW YORK CENTRAL at Chicago, has been named to succeed **H. F. Whitehead,** designing engineer for Lines West, at Buffalo, N.Y., who is retiring after 47 years of railroad service. Mr. McCook will remain in Chicago in his new capacity.



## PURCHASES & STORES

**G. M. Carr** has been appointed assistant purchasing agent of the NORTHERN PACIFIC at St. Paul (*Railway Age*, March 23, page 140). Mr. Carr entered railway service on the NP as a messenger at St. Paul in 1926, transferring to the stationer's office as a clerk a year later. He then held a number of stenographic and clerical positions, receiving his promotion to statistician in the purchasing department in 1943. In 1948 he became a buyer, and four years later was further promoted to office manager.

**A. E. Davis,** who served as acting purchasing agent of the TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS during the illness of **H. A. Smith,** has retired (*Railway Age*, March 23).

## COMMUNICATIONS & SIGNALING

**C. T. Marak,** assistant signal engineer of the MISSOURI PACIFIC, has been named signal engineer at St. Louis. He succeeds **L. S. Werthmuller,** who has retired after 41 years of service.

## SPECIAL

**H. F. Wyatt, Jr.,** assistant manager labor relations of the BALTIMORE & OHIO, Baltimore, has been appointed superintendent personnel of the READING at Philadelphia. **Wilmer B. Kohler,** secretary to vice-president—personnel of the B&O, succeeds Mr. Wyatt as assistant manager of labor relations of the B&O at Baltimore.

## OBITUARY

**Gladstone Frederick Patten,** 61, assistant superintendent of the car department of the BALTIMORE & OHIO at Baltimore, died April 7 at Union Memorial hospital, following a short illness due to a heart ailment.

# SPERRY
## ULTRASONIC SERVICE

for detection of rail end defects
within joint bar limits


**NEW LOW PRICE**
*** 7 ½¢** PER JOINT

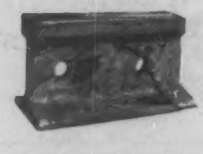
Our skilled operators using latest equipment assure you of HIGHEST QUALITY TESTING AT LOWEST COST

*** BASED ON AN AVERAGE BILLING OF $21 PER MILE TESTED**

# now

**CUTS 1953 TESTING COSTS**

**TYPICAL RAIL END DEFECTS INEXPENSIVELY LOCATED BY THE ULTRASONIC CAR**



BOLT HOLE CRACK

HEAD AND WEB SEPARATION

**SPERRY RAIL SERVICE**

*DIVISION OF SPERRY PRODUCTS, INC.*

**Danbury, Connecticut**

NEW YORK, N. Y. CHICAGO, ILL. ST. LOUIS, MO.


FIRST IN RAIL TESTING


**Rates: $5.00 an inch (1" x 1⅛") per insertion; employment ads 10 cents a word, minimum $2.00. Add $1.00 for box address.**

# RAILROAD EQUIPMENT—*FOR SALE*

## USED AS IS RECONDITIONED

### STANDARD GAUGE FREIGHT CARS

Box, Steel Sheathed, 40-Ton
Box, Double Sheathed, 50-Ton
Box, Single Sheathed, 50-Ton
Flat, 50-Ton, Steel Underframe, 40' 6" Long
Gondolas, Composite or All-Steel, 50-Ton
Hoppers, Twin, All-Steel, 50-Ton, Cross Dump
One Hopper, All-Steel, 50-Ton, Heavy Duty
Tank, 3,000-Gallon, High Pressure
Tank, 8,000-Gallon, Coiled and Non-Coiled
**Hoppers, All-Steel, 70-Ton, Triple Hoppers, Cross Dump**

### EXTRA LONG FLAT CARS
40- & 50-Ton Capacity, Length 70' and 74'

### CABOOSE CARS
Eight Wheel, Cupola Type

### STANDARD GAUGE AIR DUMP CARS
Side Dump, 20-Yd., 40-Ton, Lift Door
End Dump, 20-Yd., 50-Ton, Drop Door
Side Dump, 30-Yd., 50-Ton, Drop Door

### OTHER EQUIPMENT
Jordan Spreader
Locomotive Cranes
Overhead Cranes
Railroad Track Scales

### STANDARD GAUGE DIESEL-ELECTRIC ROAD SWITCHING LOCOMOTIVE
300 H.P., 70-Ton, Type 0-4-4-0

### PASSENGER EQUIPMENT
Passenger Cars
Baggage Cars
4 All-Steel Dining Cars, Air-Conditioned

*Send us your inquiries* — **We Buy Freight Cars for Dismantling** — *Send us your offerings*

REPAIR PARTS For All Types of Freight Cars

**IRON & STEEL PRODUCTS, INC.**

GENERAL OFFICE
13486 S. Brainard Ave., Chicago 33, Illinois
Phone: BAyport 1-3456

NEW YORK OFFICE
50-c Church St., New York 7, N. Y.
Phone: BEekman 3-8230

*"ANYTHING containing IRON or STEEL"*

STORAGE TANKS
6,000 Gallon
8,000 Gallon
10,000 Gallon

---

**Educational Services for RAILROAD MEN**

Our New Service on Diesel Locomotive Operation is highly recommended for Engineers and Firemen

*The Railway Educational Bureau Omaha 2, Nebraska*

---

## *NEW AND USED EQUIPMENT*

### FOR SALE

**Fourteen 70-ft. all-steel flat cars.**

Wood decking and A B brakes. One private railroad car with living room, dining room, 3 bedrooms, and kitchen. All cars in first class condition. Will pass interchange. Inspection can be made at our Chicago yard.

*Erman-Howell Division*

**LURIA STEEL AND TRADING CORP.**
332 South Michigan Avenue Chicago 4, Illinois
Phone WAbash 2-0250

---

### FOR SALE

65 ton General Electric 380 HP diesel electric locomotive. Rebuilt. 4 heavy duty steel flat cars, 70 ton capacity.

30 ton Industrial Brownhoist locomotive crane gasoline powered.

**MISSISSIPPI VALLEY EQUIPMENT CO.**
509 Locust St. St. Louis 1, Mo.

# CLASSIFIED DEPARTMENT

## NEW AND USED EQUIPMENT

NARROW GAUGE RAILROAD will sell at PUBLIC AUCTION in Montrose, Colorado, Monday April 27, 10:00 a.m. 23 miles railroad line, bridges, ties, mot. power and cars. Request catalog.

**R. E. FORTNA**
**AUCTIONEER**
**427 Cooper Bldg.,**
**Denver, Colo.**

**RELAYING RAIL**

**Good Stock**

**No. 1—70 lb.**

**Complete with Angle Bars ARA Section Tie Plates**

Locomotives and railroad rolling stock available in addition to all size rails, track spikes and other track accessories.

**Write — Wire — Phone**

**SONKEN-GALAMBA CORPORATION**

**2nd and Riverview (X-855)**
**Kansas City 18, Kansas**
**THatcher 9243**

**FOR SALE**

3 used 50 Ton Baldwin Electric Locomotives.

In good operating condition. Standard gauge.

**Cleveland Iron & Metal Company**
**2432 West 3rd Street**
**Cleveland, Ohio**

Robert W. Hunt Company
*ENGINEERS*
Inspection—Tests—Consultation
All Railway Equipment
Structures and Materials
General Office:
175 W. Jackson Boulevard
CHICAGO
New York-Pittsburgh-St. Louis

## POSITION OPEN

**SALES ENGINEERS**

A successful corporation in the mechanical field, located on the east coast, has openings for sales engineers, age 26 to 40, with two or more years actual experience selling mechanical devices, machinery or equipment to railroads or machine and equipment builders. Engineering graduates preferred must be willing to travel in East or Midwest. Permanent position, salary plus travelling expenses, and liberal employee benefits. Write stating your experience, educational background and other qualifications in care of this magazine. Replies held in strictest confidence.

**Reply to Box 673, RAILWAY AGE, 30 Church Street, New York 7, N.Y.**

Sales Engineer, metropolitan New York area. Specification sales to railroad and private architects and engineers. Must have concrete or concrete construction experience and sales ability. Salary, expense and commission. Attractive for long term. **Sika Chemical Corporation, Passaic, N. J.**

The engineer for this job is about thirty years of age probably with experience in Valuation or A.F.E. departments. He is skilled at estimating cost of constructing or repairing railroad buildings and bridges. Ambitious man, meeting people easily, has good future in long established business in Chicago. Some travel. Please state qualifications. **Box 216, RAILWAY AGE, 79 West Monroe St., Chicago 3, Illinois.**

**SALES ENGINEER**

Electrical Engineer required to assist local salesmen in contacts with railroad, mining, and utility engineers to sell rail bonds and allied electrical specialties. Railroad signal experience preferred. Age 25 to 35. Headquarters in Cleveland. Considerable travel. Minimum starting salary $450. Write giving age, education, experience, personal qualifications, etc.

**Address Box 674, RAILWAY AGE, 30 Church St., New York 7, N. Y.**


**Official Facts, Figures, Photos and Maps of Every Class I Railroad in the U. S.**

# HANDBOOK
## of
# AMERICAN RAILROADS

by ROBERT G. LEWIS
Transportation Editor, *Railway Age*

How many diesels has the Chicago, Burlington & Quincy? . . . When was the Gulf, Mobile & Ohio started? . . . Who is president of the St. Louis-San Francisco? *Handbook of American Railroads* supplies you with these and tens of thousands of other answers.

For Each of 127 Railroads, HANDBOOK OF AMERICAN RAILROADS bring you:

1. Outline Map
2. Photo of Famous Train
3. Herald (if used)
4. Historical Sketch
5. Brief Biography of the Chief Officer
6. Latest Financial and Operating Statistics
7. Latest Equipment Data
8. Many Other Highly interesting Statistics Collected Here for the First Time

Now you can get—for the first time under one cover—official up-to-date facts on 127 Class I railroads. Specially-drawn maps show the route of each road. Beautiful action photos of crack trains such as Twin Cities Zephyr, The Red River, The Inter-City Limited, and dozens more fill the book.

This means convenience for the railroad executive, fun for the railfan, and—for everyone concerned with railroads—a tremendous gain in railroad knowledge that only a vast accumulation of facts like this makes possible.

265 p. 5½ x 8½ 375 ill. board **$2.95**

**FREE EXAMINATION COUPON**

**Railway Age, Dept. 4-20-53**
**30 Church St., New York 7, N. Y.**

Please send me for Free examination a copy of the HANDBOOK OF AMERICAN RAILROADS. If after 10 days I am not completely satisfied, I will return the book and owe nothing. Otherwise, I will remit the price of $2.95 plus a few cents for postage and handling.

Name .....

Street .....

City, State .....

# ADVERTISERS IN THIS ISSUE

For IMPROVED PERFORMANCE of ROLLING EQUIPMENT

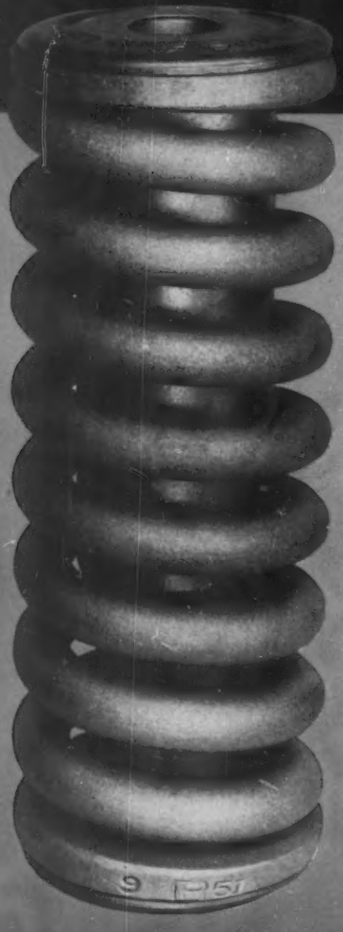
Specify

Symington®

# SNUBBERS

## MODERNIZE OLD FREIGHT CARS WITH TYPE SBS SNUBBERS

1. Protect lading by control of harmonic spring action.
2. Protect car body against damaging shock.
3. Reduce damage to roadbed by preventing over-solid blows.



## Symington LONG TRAVEL SNUBBERS for LOCOMOTIVE and PASSENGER CARS

Provide a smoother, more comfortable ride for passengers. Locomotives operate with less roll and vertical shock.

Designs available to suit a wide variety of truck conditions.

## THE SYMINGTON-GOULD CORPORATION

Works: DEPEW, NEW YORK

New York • Chicago • St. Louis • Boston • San Francisco • In Canada: ADANAC SUPPLIES, LTD., Montreal, Que.


NEW FREIGHT CARS

# Earn four times average revenue

*—using Chrysler Design Railroad Freight Trucks*

A yearly revenue of $16,800 sounds startlingly high compared with an average of only $4000 on common railroad box cars. Yet this is the performance record, based on operating figures reported by lessees, of the new General American-Evans GAEX box cars . . . where Chrysler Design Trucks are standard equipment.

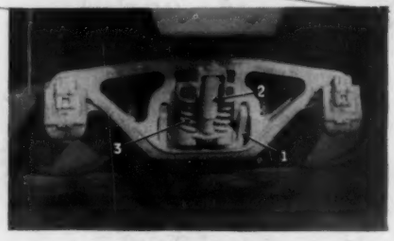
The superior ride which Chrysler Design Trucks make possible is one of the contributing reasons these cars — now leased by 14 railroads — show such high earning power. GAEX cars carry heavier loads without damage; carry more delicate, higher-rated loads; and provide a "sleeper car" ride even at passenger train speeds.

Chrysler Design Trucks are constructed on a completely new application of the fundamental principles of *Balanced Suspension.* They show reductions of 98% in vertical shock index and 95% in lateral shock index (AAR formula) as compared with standard trucks having coil snubber spring groups.

With modern cars like these becoming increasingly available, now railroads can substantially increase average car-mile revenue income in active freight service.

. . . . .

A result of Chrysler Corporation's continuous research into every phase of vehicle design, Chrysler Design Railroad Freight Trucks are manufactured and sold by the Symington-Gould Corporation, Depew, N. Y., under Chrysler license. Chrysler Design Friction Snubbers are manufactured and sold under Chrysler license by the Houdaille-Hershey Corporation, Detroit 2, Mich.




**This is balanced suspension**

*(1) U-shaped, pendulum-type hangers permit shock-absorbing lateral motion. (2) Chrysler Design self-contained, constant friction snubbers work with (3) the longest travel standard coil springs to absorb vertical shocks and control spring oscillation. No "harmonic bouncing" of car to damage equipment or merchandise. No "free sway" of car body.*

**CHRYSLER CORPORATION**

*Plymouth · Dodge · De Soto · Chrysler*